CHARACTERISTICS OF DESIGN THOUGHTS THAT LEAD TO DESIGN MALPRACTICES IN THE HISTORY OF BUILT ENVIRONMENT

ABDUL QAYYUM BIN ABD MUIS
2012866698

AAR635 TOPICAL STUDY
BACHELOR OF SCIENCE (ARCHITECTURE) (HONS.)
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA, PUNCAK ALAM

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CHAPTER 1: INTRODUCTION

The genesis of this paper started from my studies in architecture[1], either formally or informally, a passion for constructive games e.g.: SimCity, Transport Tycoon, and my experiences that followed through from my own built environment assignments.

My formal training in built environment is all-encompassing, that is from theory to practice. The theoretical part consists of teasers i.e. several precise guidelines or examples on what to do and not to do in the final submission, adding on from the brief's initial requirements. However, being guidelines, these theories are only useful as references in practice. *(See Figure 1)* The practical part is in the projects we have to design. It is from there that all the troubles and challenges of designing come forth, from site analysis to design, topped off with designing presentation materials. *(See Figure 2)* The relationship between theory and practice is that although you can ramble about theory and plan as …

[1] What is architecture? To me, (and this is after discovering 'architecture' on the phrase 'motherboard architecture') it is an introspection of establishing structures or systems for intended benefit by humans. It can be in tangible or intangible form. However, for an architecture to truly work, there has to be both, and they need to work symbiotically for the system to work as intended.

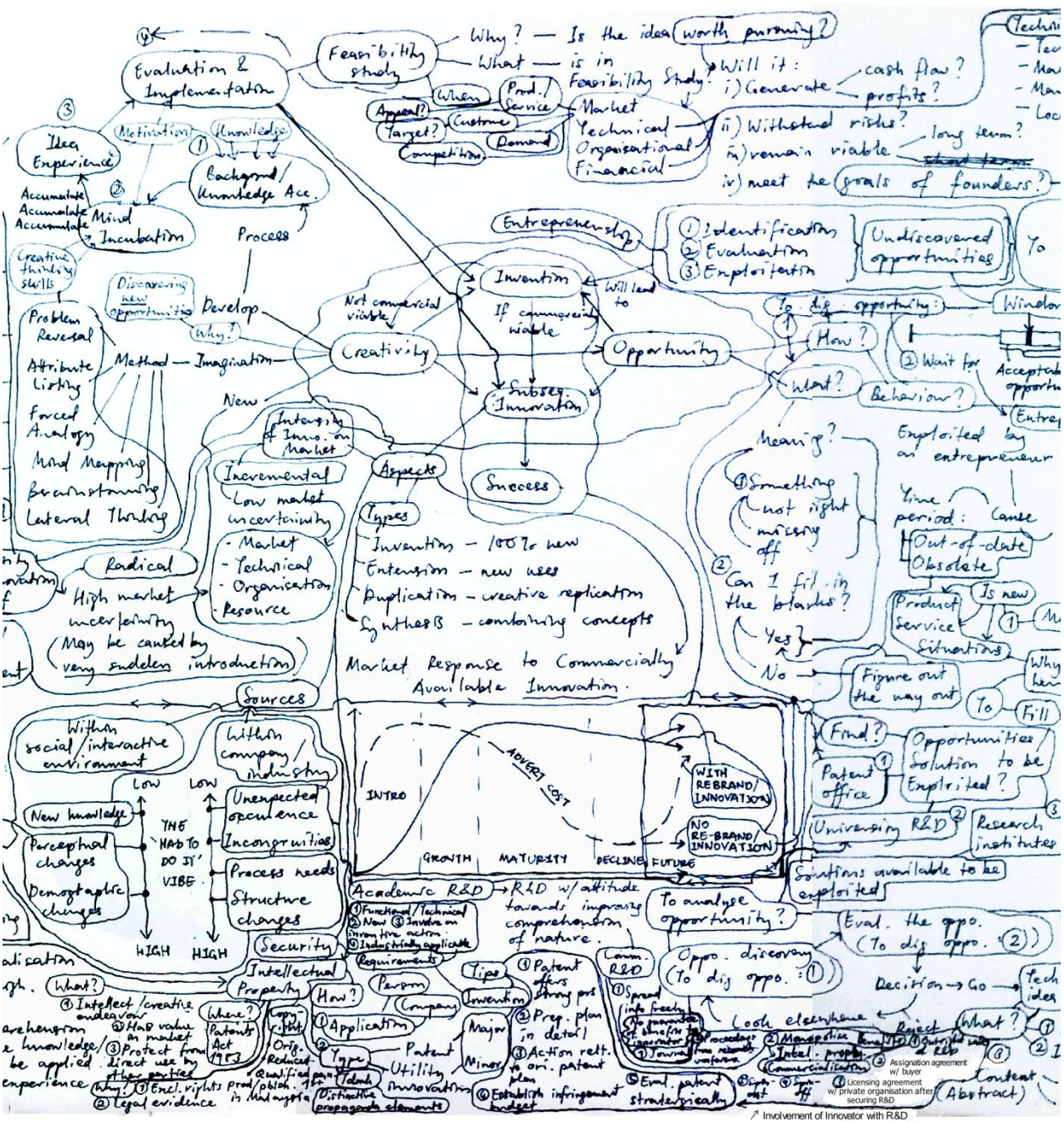

Figure 1: “However, being guidelines, these theories are only useful as references in practice.” A snippet of the universe of entrepreneurship theory.
Source: Author

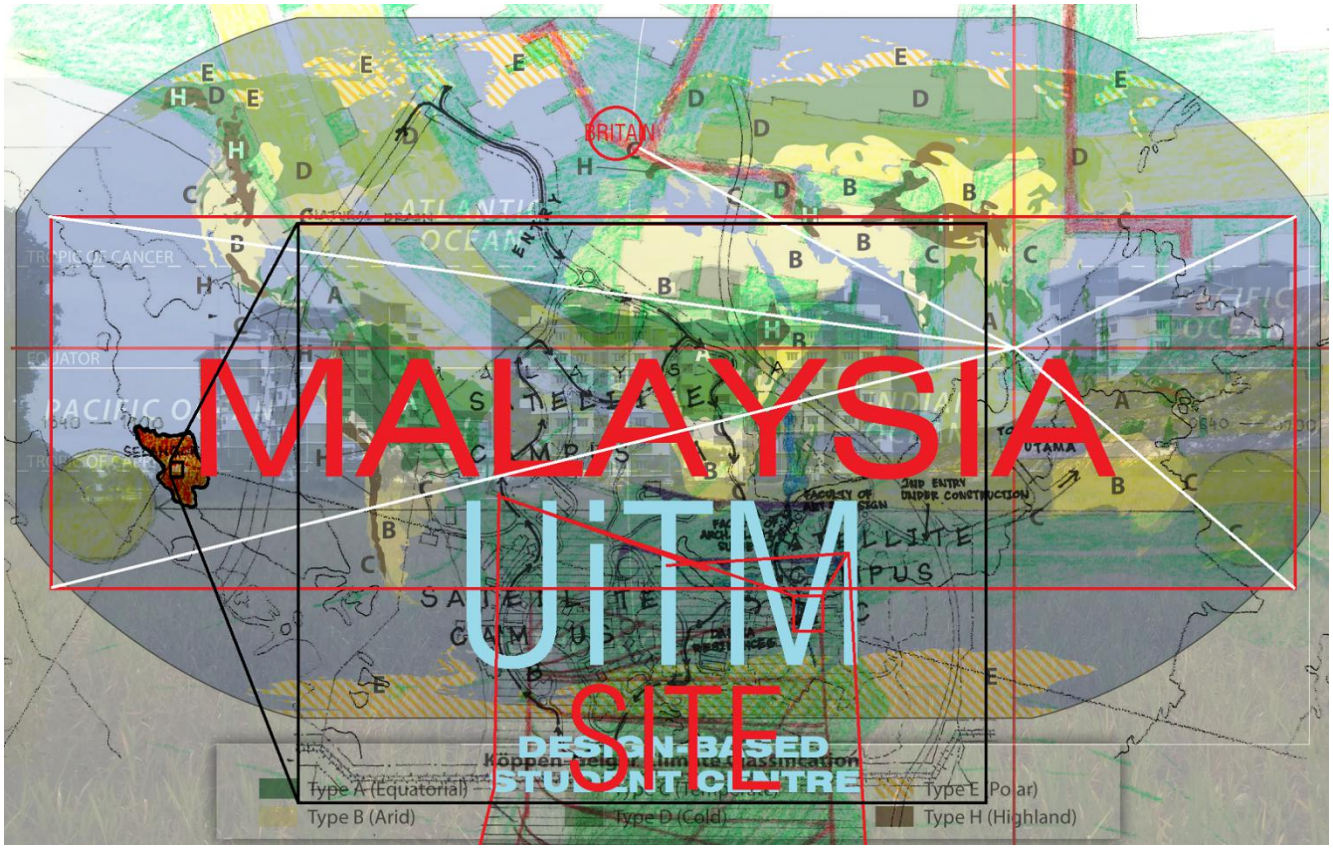

Figure 2: “It is from there that all the troubles and challenges of designing come forth, from site analysis to design…”. The macro-micro awareness of designing a design-based student centre in UiTM Puncak Alam, Selangor, Malaysia.
Source: Author

…incomprehensible, as brash and as wasteful as you want, in practice, only the laws of the universe matters. Cooperate with the universe, and you are successful. Vice versa.

My informal training in built environment supplants the theory and practice of my formal training. Of consistent findings in Internet and books from famous architects, built environment theory, inventions and innovations of built environment services and built environment projects. I did not research the superficial part of built environment, e.g. form, space, order, for of course they can be put in any way and still be correct. I instead look for underlying, more essential aspect, that is, the relationship between humans and built environment, both in a distant and direct way, and also in a conceptual and technical way *(see Figure 3)*, for the end of any building is to be used by humans.

My hobby was (and still is) watching design that works. This is why I have been pouring lots of time in games such as SimCity (notably 2000, 3000 and 4), Pizza Tycoon 2 and Transport Tycoon (notably Deluxe). *(See Figure 4 and 5)* I find that whenever I played these types of games, although you do not see much of anything on the surface, I could see, with prolonged play, for example, where that I should fix and consequently, how and in what order should I fix. Fixing problems, instead of being a job, become a hobby. These games will suck lots of time from you, but what these games teach you is worth the time. When

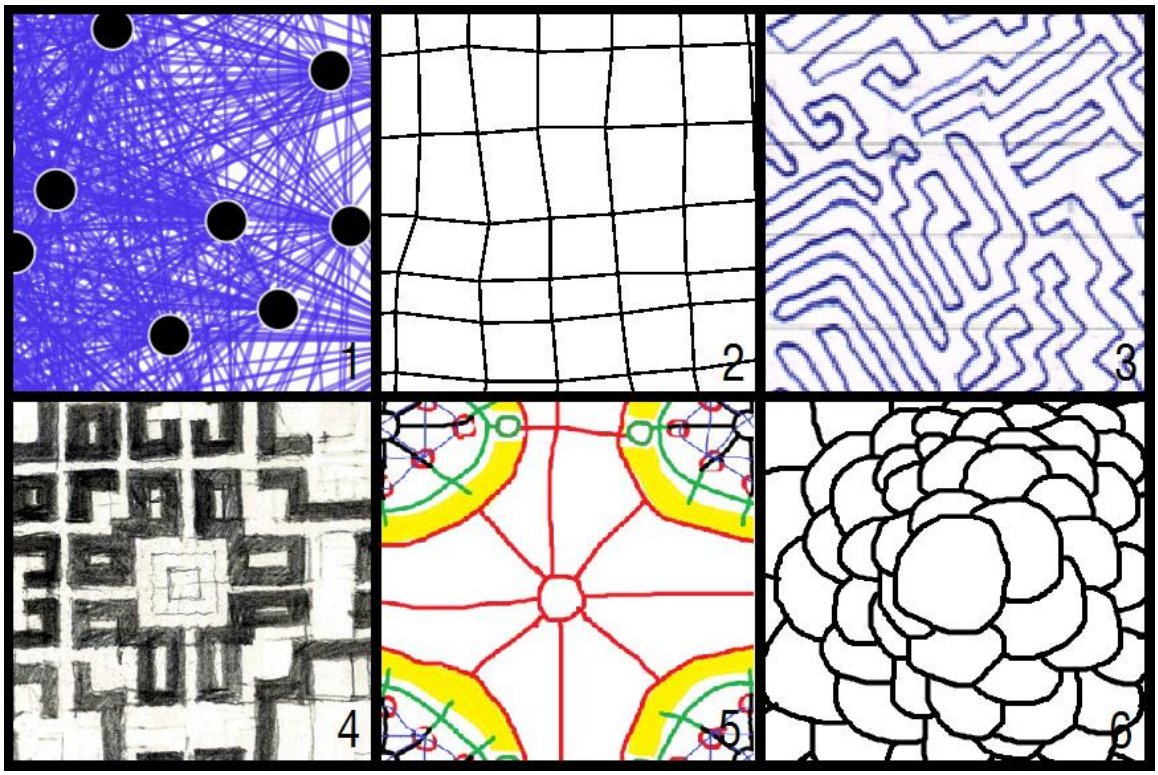

Figure 3: “I instead look for underlying, more essential aspect, that is, the relationship between humans and built environment, both in a distant and direct way, and also in a conceptual and technical way…” The implicit world, of which solid and void and dimensions are all but reality.

Source: No. 1 by Maklaan (username) (2014), *Sna large.png*, Wikimedia Commons (website), No. 2 to 6 by author.

Figure 4: An example of *SimCity 4* during game-play. I have added peripherals (usually called plug-ins or modifications) which enhanced the game-play immersion. Above picture is taken at the commercial district and below the picture is in one of the residential districts. I want to note that this city is gradually grown using the game's own simulation system and selectively pruned over several months, much like how one grows and takes care of *bonsai* (the Japanese art of cultivating plants).

Source: Game save file by author. Original game by Maxis (2003).

Figure 5: An example of OpenTTD (reverse-engineered and enhanced version of Transport Tycoon Deluxe) during game-play. I have added peripherals (usually called plug-ins or modifications) which enhanced the game-play immersion. Above most picture is the map of the entire transport system, freight and passengers, in a certain procedurally generated land. Below it are game-play screen-shots of the map above.

Source: Game save file by author. Original game by Chris Sawyer (1996).

you have finished your system, what you obtained throughout the time is what to do and not to do in establishing all sorts of systems. When you have moved on to a fresh space, you will start off with insight behind you. Each play, each problem, each move brings more and more insights behind you, appropriate to what you wanted to achieve all along. In the end, you will look deeply at universe with permanent fascination, all simply because the universe is so full of honest, sensible and enlightening insights, which replaces prejudices and assumptions that are there simply because of not acknowledging reality.

My experience that accompanies my design projects are even more varied, and also more deeply rooted in reality. The best times that I have spent have been those concerning humanitarian and spiritual acts, of which I hope to continue. For example, hauling strangers to destination, picking up trash, really be serious in my relations with Supreme Intelligence by fixing and maintaining belief, eliminating wasteful practices and implementing beneficial ones *(See Figure 6)* I find that most of world's current problems can only be solved by these small acts, and consequently, our abandonment of these has caused a lot of long overdue jobs and massive amounts of claims for damages by fellow humans. Surprisingly architecture[2] relates even less…

[2] See footnote no. 1.

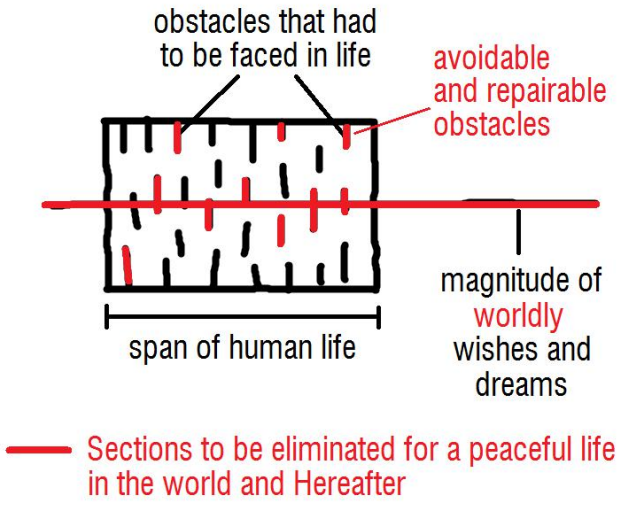
obstacles that had to be faced in life
avoidable and repairable obstacles
magnitude of worldly wishes and dreams
span of human life
Sections to be eliminated for a peaceful life in the world and Hereafter

Figure 6:
Above: Erasing the expectations which everyone and me too cannot achieve and saving myself from disappointment and frustration by removing obstacles.

Below: "…our abandonment of these has caused a lot of long overdue jobs and massive amounts of claims for damages by fellow humans." The layout of this city itself, let alone its buildings has cause much inconvenience to hundreds of thousands of humans who live in the city. Perhaps we will only learn our lesson when the world is exhausted of petroleum. Who, then, had to pay for these misfires?

Source: Above, drawn by author, original diagram by Muhammad p.b.u.h., recorded by Sayyidina 'Abdullah r.a., Sahih Bukhari (no. 6417). Below by Graham Brenton McKay (2017), *The Massively Big Autopoiesis of Architecture Post*, Misfit's Architecture (website).

to these except with regards to housing, quantification, quality, enlightenment, gentrification, economics, and art. *(See Figure 6)*

At the end, I had trawled so much of the architecture theory, architects, building services, projects, computer game sessions, and humanities that I started to wonder: how did it all flow from antiquity, so to say? Although all these information in my head seems extensive, there are parts of my recalling that seems more destined towards fairy tale rather than concrete truth to me.

As such, I intend for this research paper to be my own journey to clean up the mess that I have started, par my own journey in reducing the number of possessions in my bedroom to the point where there are only ones stemming from immediate human needs (of which I still struggle sluggishly towards it today), and also to trace back these collection of concerns that made up the euphoria and frustration of today's built environment.

1.1 Statement of the Problem

In built environment, the word 'theory' has been there from the onset of civilisation. For example: Indus civilisation, Chinese civilisation, Western civilisation. These kinds of theories occur when the people decided to build shelters with intentions that do not originally belong to

the first notion of shelter, as security from the dangers of Nature (I found this unreasonable. Does Nature wants anything unreasonable from us in return?), e.g.: following Nature, show off to humankind, a certain groping towards the future. This will be the subject of our concern in this paper, where we track the journey of such theories toward practice to find the characteristics of such procedures that causes the design to suffer from problems related to mindset model used, that cannot be solved by quick fix methods.

The current body of knowledge is already extensive. There have been many, many published studies on the relationship of built environment condition to the human condition, from the ancient times (De Architectura) to the present (Misfit's Architecture). However, it seems that each study published covers a limited range of topics, within a limited range of era. Oddly enough, the theories that are presented in the past are never discussed in books thereafter, and its past specimens are judged in rather superficial ways, often as instruments for a new theory. *(See Figure 7)*

It is in this isolative behaviour of these materials that most of built environment projects by architects who are exposed to these materials have never been able to eliminate in its entirely design malpractices due to design thoughts being misintepreted. Charles-Edouard

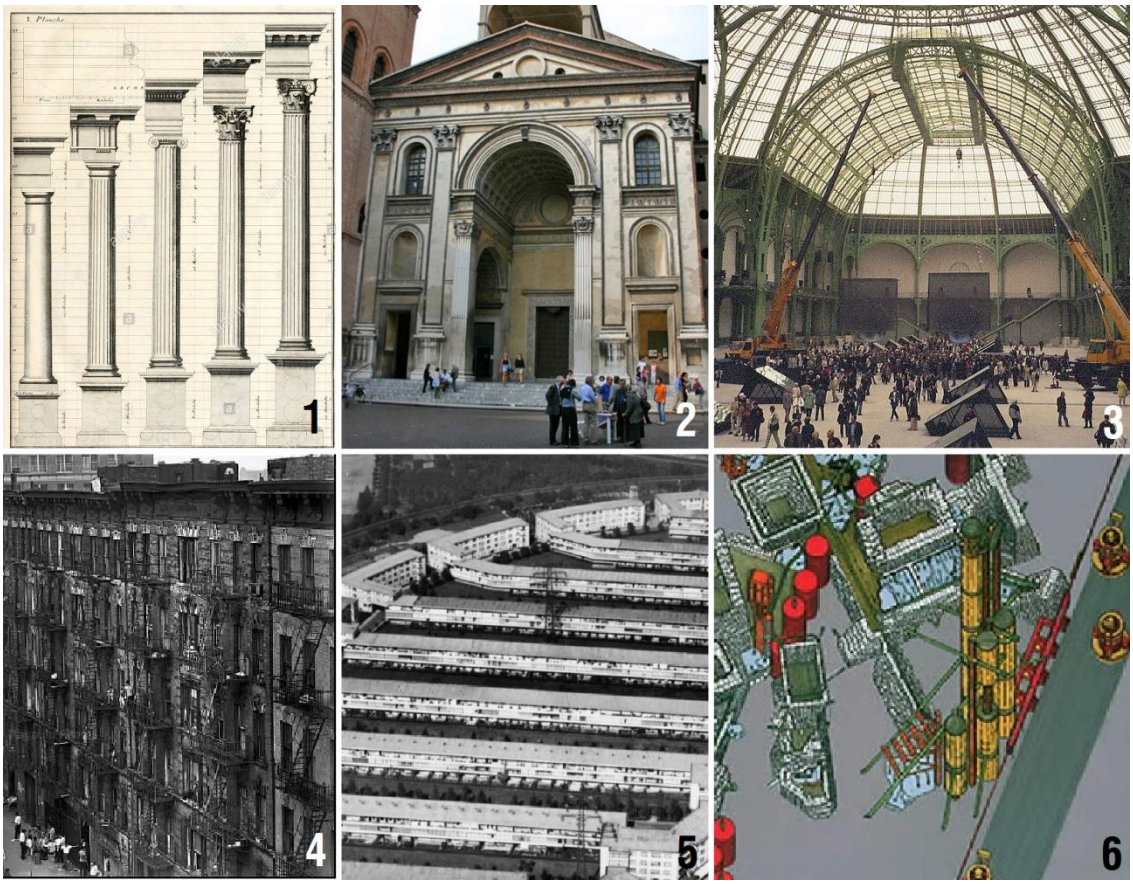

Figure 7:
Creative application of architecture of built environment as a tool to continue where the innovator or engineer stopped; to mollify public's perception of reality. People sometimes take refuge when they are offended and exhausted by reality. The architects took this one step further, and become thinkers and tinkers, to make reality polite and rejuvenating, like Heaven. "You see what I see? There is Heaven, on Earth!" says the architects, surprising themselves. They get right down to it, hoping people will follow their groove and get it too.

What, perhaps, the architects often forget, is to make contacts with the users of reality of built environment.

Source: No. 1: Claude Perrault (1683), *'Ordonnance des cinq espèces de colonnes selon la méthode des anciens',* Alamy (website). No. 2: Anna Zacchi (2006), Sant'Andrea in Mantova, Italy, Wikimedia Commons (website). No. 3: David Monniaux (2006), *Grand Palais*, Paris, France, Wikimedia Commons (website). No. 4: Drguzman (username), Untitled, Photobucket (website). No. 5: Ernst May (1934), *Estate Heimatsiedlung, Frankfurt am Main, Misfit's Architecture (website).* No. 6: Peter Cook (1964), *The Plug-In City*, Archigram (website).

Jeanneret (1924) has stated of designs that suffer this problem (Referring to Saint Peters', Vatican City) as "…empty verbosity, misplaced words." *(See Figure 8)*

1.2 Purpose of the Study

The aim is mainly ensuring that several characteristics of design thoughts that lead to design malpractice (wastage of time, money, effort to get something that does not line up with pertinent needs) can be identified and eliminated at the conception level. It is expected that the person who reads this paper will gain a big picture of the genesis, accumulation and revision of past thought processes over time, taking into account constantly looking at the failures of past and the success of future. It is also expected that this paper will influence architects to implement solidly in whatever projects they are having right now, relevant practices of past that are of sound thought process be reintroduced, replacing those of practices that are faulty in conception and execution, whether it is by tradition or innovation. Of matters of theory, this paper will hopefully spark a more regimented, focused, honest, and thorough practice of built environment discourse, while still be able to express the polychromy of built environment condition in relation to human condition, typical of architects.

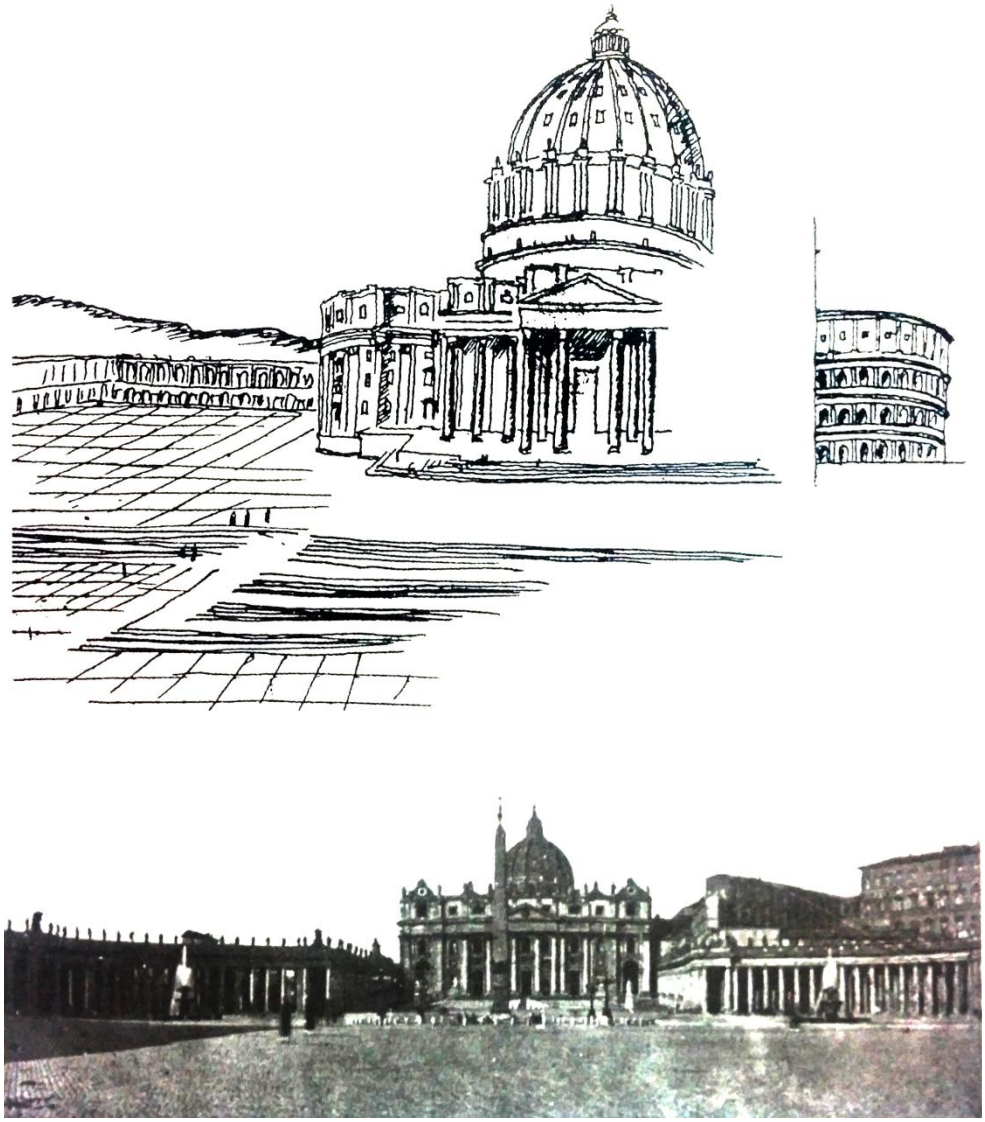

Figure 8:
Of Michaelangelo's proposal: "The use of moldings is as **passionate** as it can be, fierce and full of pathos."
Of today's state: "empty verbosity, misplaced words."
Source: Charles-Edouard Jeanneret (1924), *Toward An Architecture*, Paris: G. Cres

1.3 Aim and objectives of research

The aim of this research is to collect thought processes in the history of philosophy of built environment a la *A Pattern Language* by Christopher Alexander (1977), but instead of decisive mode, giving solutions, I will do it in investigative mode, giving reports *(See Figure 9)*.

First, I wanted to know their intentions for all those theories they put out. The bulk of thoughts presented to us are actually ways how to modify environment to suit it while intending to use it like they intended all along. Their projects as well as their written books are the testament to this immense drive of, say, a race but what drives them to drive?

Second, I wanted to know how do they achieve the intention. These bulk of thoughts mentioned above will be its testament. Here all is taken, the wrong way and the right way. These will be indicated and be given the reasons why.

Third is what the end result eventually looks to be, how it measured up with intention, and how do the end result measure up to the reality. This is where the fallacy and aptness of these thoughts will be appraised from those materials mentioned above in comparison with the built specimen. *(See Figure 10)*

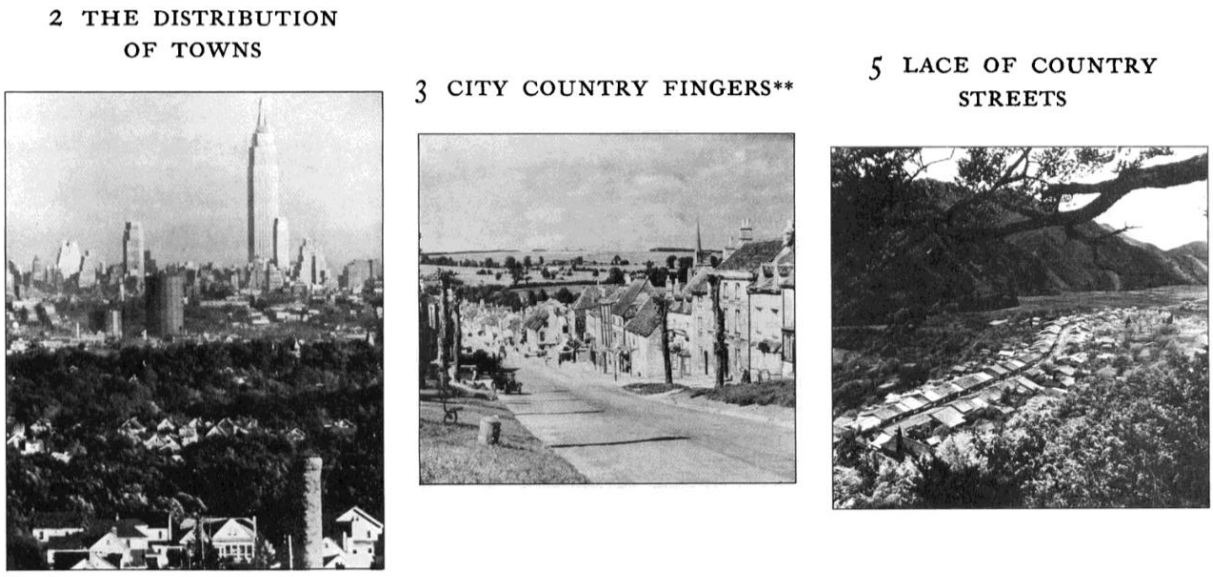

Figure 9:
The conclusion will be laid out as above, without pictures.
Source: Christopher Alexander, et. al. (1977), *A Pattern Language*, Oxford University Press.

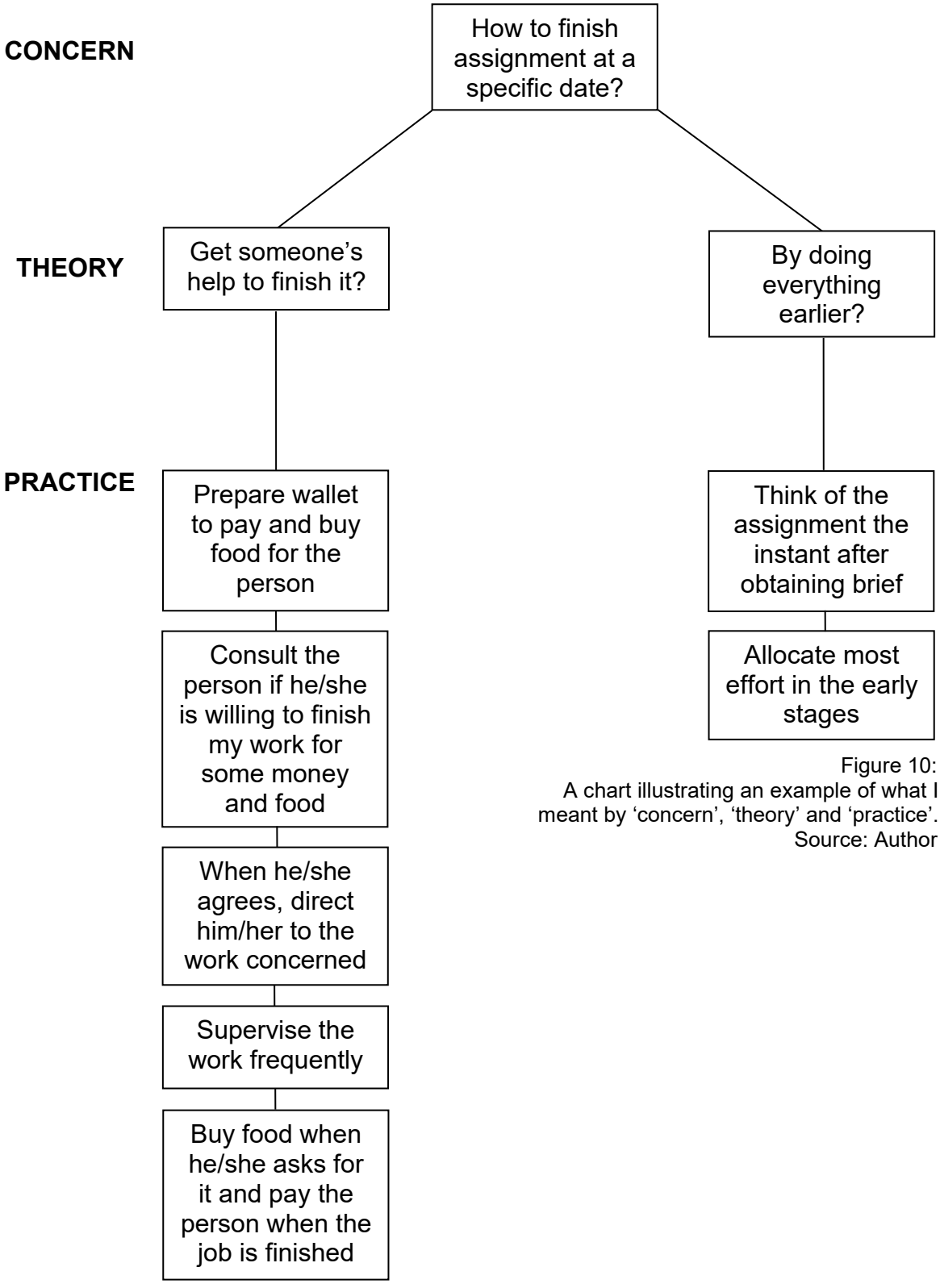
CONCERN
How to finish assignment at a specific date?
THEORY
Get someone's help to finish it?
By doing everything earlier?
PRACTICE
Prepare wallet to pay and buy food for the person
Consult the person if he/she is willing to finish my work for some money and food
When he/she agrees, direct him/her to the work concerned
Supervise the work frequently
Buy food when he/she asks for it and pay the person when the job is finished
Think of the assignment the instant after obtaining brief
Allocate most effort in the early stages

Figure 10:
A chart illustrating an example of what I meant by 'concern', 'theory' and 'practice'.
Source: Author

CHAPTER 2: LITERATURE REVIEW

In order to start this chapter, it is unavoidable to me to provide several of my own hypotheses on how a subject, e.g.: architecture, is theorised and put to practice. From these statements, there spring forth from a need to counterattack skeptics and opponents, several accounts and quotations from other publications, which serves to illuminate the workings of these hypotheses and at the same time prove their relevancy.

1. In order to create a successful artificial system, two questions must be answered: “Why?” and “How?”. [3]

2. A “Why?” only will remain a reason or excuse, and will not matter thereafter. A “How?” only will remain an application that can not be applied anywhere, and will not matter thereafter too.

3. In the case of architecture of past and present, how beneficial and successful the execution is depends on the accuracy of thoughts taken into account, the accuracy of the chain of decisions behind it and the accuracy in executing the ultimate decision.

[3] “When?” refers to what time. “What?” causes referrals. “Who?” refers to what person. “Which” refers to two statements or more that both are technically true but contextually uncertain.

The above hypothesis are elaborated into four main explanations, in order to explain them:

2.1 Why and how does theory or practice came about?

2.1.1 Why do we had to have theories?

Why does a theory come about? Office of Behavioral & Social Sciences Research, under National Institutes of Health, under United States Department of Health and Human Services (n.d.) states that (referring to the subject of social and behaviourial theories) theories came about because “a theory presents a systematic way of understanding events, behaviors and/or situations.” University of Florida (1996) quotes from Moore (1991) that theories came because “the theory (…) helps us understand what we don’t know and, therefore, is the only guide to research. Relating to theory, it increases its ability to solve other problems in different times and different places.” Scott Reeves, et. al. (2008) (referring to qualitative research) states that theories came about because “theories provide complex and comprehensive conceptual understandings of things that cannot be pinned down: how societies work, how organisations operate, why people interact in certain ways. Theories give researchers different

"lenses" through which to look at complicated problems and social issues, focusing their attention on different aspects of the data and providing a framework within which to conduct their analysis." In conclusion, theories came about because of the need to solve a broad problem (of which it is urgent, for it causes undesirable outcomes if not acted upon, e.g.: I really, really have to plan (construct a theory) on how to survive.), or to be able to explain why does it happen, should another person asks why. (of which it is purely investigative, for the outcome is only in enlightenment) e.g.: The man sinks in the depths of mud because there is another creature down below that grabs the man down, or the mud is itself a liquid, unable to support the weight and that mud pool is actually deep enough to sink a man in. *(See Figure 11)*

2.1.2 How a theory is formed?

How does a theory came about? Alina Bradford, et. al. (2015) states that (in the subject of science): "Every scientific theory starts as a hypothesis[4]. According to the Merriam-Webster Dictionary, a hypothesis is an idea that hasn't been proven yet[5]. If enough evidence

[4] Michael Leslie (1996) calls it 'speculative theory'.

[5] Its evidence comes from his subconscious: his interpretation comes from his experience. Experience in this case refers to a selection of recollections of what he had been through in his life that bears striking similarities or relationships to the current situation.

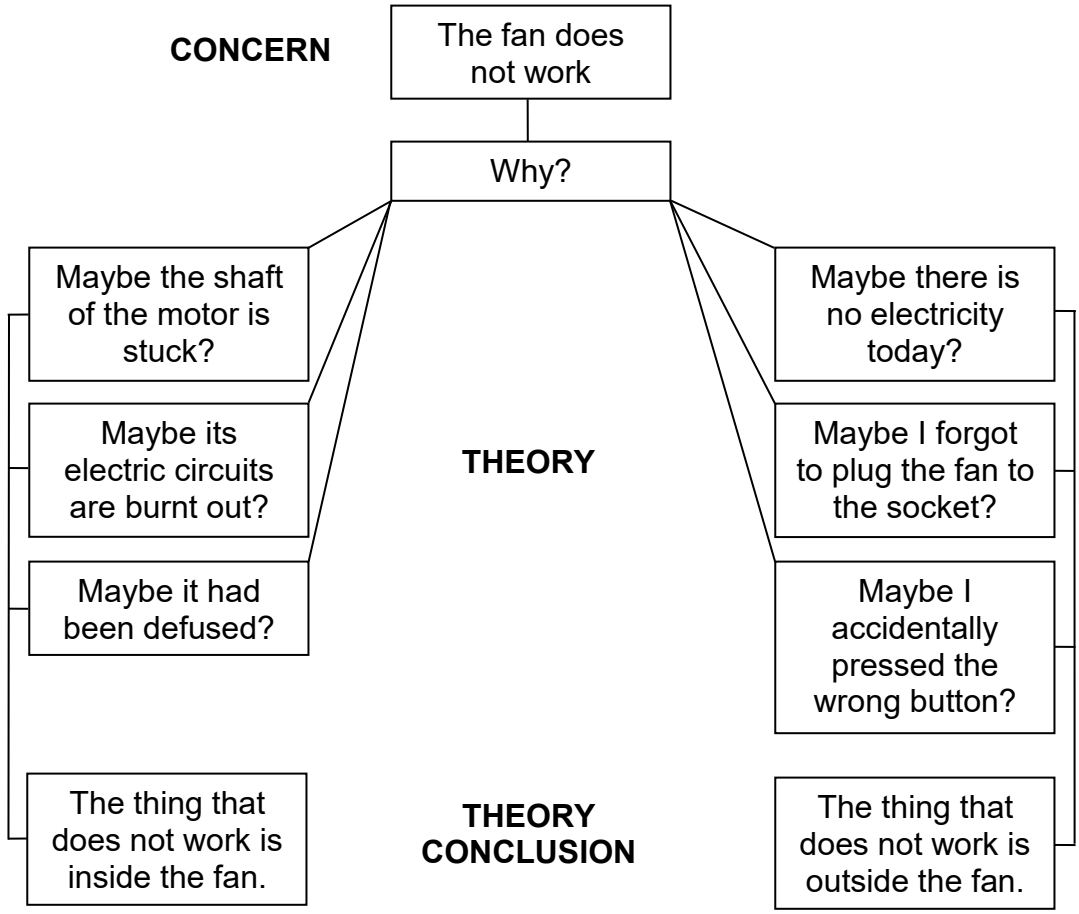
CONCERN
The fan does not work
Why?
Maybe the shaft of the motor is stuck?
Maybe its electric circuits are burnt out?
Maybe it had been defused?
THEORY
Maybe there is no electricity today?
Maybe I forgot to plug the fan to the socket?
Maybe I accidentally pressed the wrong button?
The thing that does not work is inside the fan.
THEORY CONCLUSION
The thing that does not work is outside the fan.

Figure 11: Theories came about because of a need to solve a broad problem.

This above example is a man's theory of why a fan does not work. If you have extensive (not to say 'enough', for 'enough' is, as in, grasping the knowledge of fundamental basis of the entire universe of said concern) experience around broken fans, then your theory will look much like above example, give or take.

However, if you did not have a broken fan before, then the chart above will truncate after 'why?'.

Most of our theories that we have not dealt with thoroughly (everything that is not a hobby and a chore) will have a simplistic version of the chart above. The consequence of this is disastrous.

We might have made the right decision, because the chain of thoughts is complete from start to finish, but it is done in a way that many other proposals are overlooked. Fanaticism comes from using these simplistic theories. To get the other proposals, there is no way round that except to 'brute force' (means 'establish several speculative theories that you do not usually do when confronted with a certain situation and then experiment whether it is true or not as a method of knowing more about the universe of said situation'), that includes wasting a lot of time and effort on a problem until exhausted, and then come back refreshed and a proposal came in from Allah and you will say more or less, that 'I never thought that this is the case!'.

E.g: people who had the fans not working once or twice will only accumulate one or two answers of the question 'why?'. Evidently, if you try to conclude from there, you will most likely get either one of the conclusions (if the fan is broken, it MUST be inside the fan, because it MUST be because of burnt out circuits and the stuck motor), or two of them (if the fan is broken, it can be either inside or outside, but it MUST be caused by no electricity, or burnt out circuits.)

Source: Author

accumulates to support a hypothesis, it moves to the next step — known as a theory — in the scientific method and becomes accepted as a valid explanation of a phenomenon. [6]" William K. Tong (2003) states that (also in the subject of science) a theory is "…a well-tested, well-documented, explanation that is well-supported by evidence…" Prof. Grigsby (2013) (in the subject of social theory) states that theory comes from epistemology, also known as "ways of knowing". Michael Leslie (1996) states that a (new) theory comes about from three ways: speculative, descriptive, and constructive. Speculative theory "attempts to explain what is happening" [7]. Descriptive theory "gathers descriptive data to describe what is really happening." Constructive theory "revises old theories and develops new ones based on continuing research." *(See Figure 12)* Office of Behavioral & Social Sciences Research, under National Institutes of Health, under United States Department of

[6] I rephrase from William K. Tong (2003): theory is not reality - theory is a 'reconstruction' of reality. They remain separate entities, even though the theory is evidently proven and withstand attacks for many centuries. Theories are an attempted description of the inner workings of the universe, while the universe holds no theory: it just executes according to its instructions from Allah (Note that Islam hold Supreme Intelligence concept with singular attitude). The danger is that although the evidences of these theories always make sense (either by cherry-picking or sincerely critically authentic) but the reality is that it is not the case, for the reality operates on an even broader, unified theory that relates to all and all relates to it. The analogy is one of a working, moving diorama of a city based on a location on Earth and the real city in the same location on Earth.

[7] See footnote no. 5.

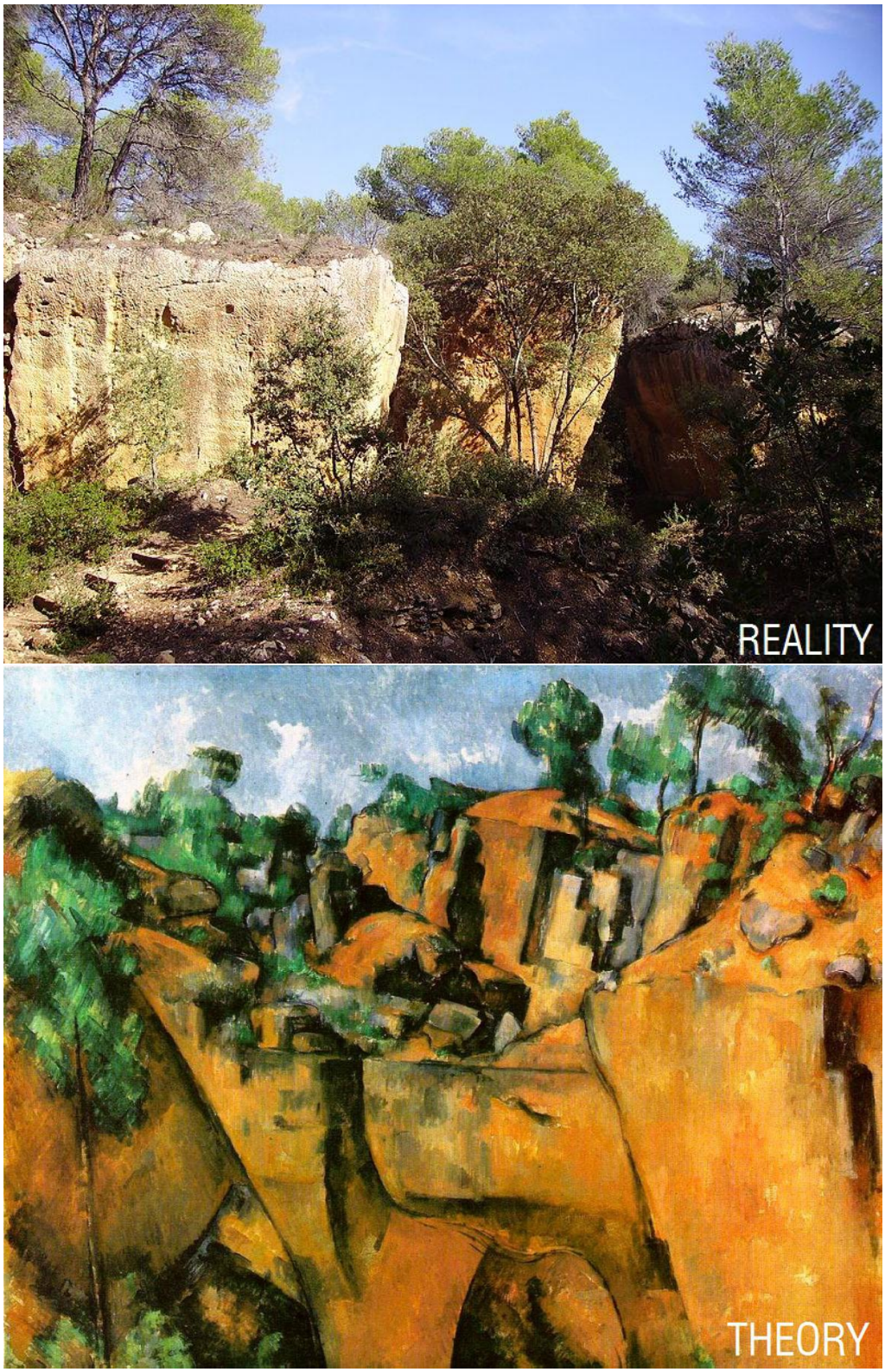

Figure 12:
A theory intended to explain observations or speculative theory is like a painting of a landscape.
A theory intended to reflect observations or descriptive theory is like a photograph of a landscape.
A theory intended to replace another theory or constructive theory simply paints or captures a better depiction of a landscape.
Source:
Above: Ballista (username) (2006), Bibemus Quarry, Wikimedia Commons (website).
Below: Paul Cezanne (1900s), Bibemus Quarry, WikiArt (website).

Health and Human Services (n.d.) states that (referring to the subject of social and behaviourial theories) theories come from a need of a "…notion of generality, or broad application…" In conclusion, theory comes from making a 'contraption' out of accumulated evidence, whether it be first-person experience or third-person experience, made by either humans or not. The question "The lightning occurs because of …" was answered very differently in the era of antiquity, when compared to the most recent answer. [8]

2.1.3 Why do we have to practice theories?

Why does practice (referring to implementation of theory, whether it be speculative, descriptive and constructive) come about? William K. Tong (2003) states that the reason for practice, that is testing of hypotheses, is to collect "…more data to see if the hypothesis continues to show the assumed pattern. If the data does not support the hypothesis, it must be changed, or rejected in favor of a better one." Then, the practice of (solidly accepted scientific) theories is required because they often have "the power to predict the outcome of certain

[8] Earliest answer: Dave Talbott (2001): (referring to an ancient motif #19 in lightning in mythology): (…) in their violent wars, the gods blast each other with lightning.

Latest answer: National Oceanic and Atmospheric Administration (of United States Government) (n.d.): (…) the need to re-equalise electrostatic charges resulting from segregation of positive and negative charge between the fall of hail and rising of ice crystals.

scenarios, which may be tested by future experiments." Sue Penna (2004) described how "the use of psychodynamic and behaviour modification theory in practice" has revealed to her several circumstances which reveal several faulty premises and faulty application of those theories that had been widely unchallenged by experts and practitioners. *(See Figure 13)* That situation, when become the norm, contributes to "great misery to those subject to theory application." [9] In short, the theories has to be put to practice in order to examine whether the results are the same as what the theory indicates; if not, the results are analysed to uncover problems within the theory.

[9] Sue Penna (2004): "I observed the use of psychodynamic theory in practice in the social work department of an acute unit in a psychiatric hospital. A senior social worker specialized in dealing with depressed female lone-parents. Reading through dozens of case-notes (meant to aid my practice) I was struck by the way that these women's depression was attributed to various failures in their early psycho-sexual development, whilst their practical circumstances – victims of domestic violence, poor housing, lack of money – were completely ignored. Needless to say, these women failed to improve, but the point to note here is that this failure was not attributed to the faulty premises of the theory and the way in which it was being applied, but to the women's innate psychopathology. My second example is taken from two years in a residential home for children with learning disabilities. Here a behaviour modification regime was implemented by management with no critical appreciation of debates in psychology about what it means to be human, what motivates behaviour and how behaviour should be understood. Those children who did not respond to 'positive reinforcement' (the majority) were labelled and punished, whilst the underlying problems of the theory itself left unexamined. In short, in both these cases, where service-users failed to fulfill predicted outcomes derived from particular theoretical paradigms, the response displayed a notably similar characteristic as in the examples from totalitarian societies – the users were pathologised, rather than theoretical premises examined."

Figure 13:
Each theory that people held on The Universe has its advantages and disadvantages - the only one holding back people from constantly changing and modifying their theories are the situation in which they are in, and their priority of their concerns. The theories held by poor people are different than those of rich people.

Of course, the pictures tell something else, the distribution of wealth in 21st century. However, just to be in keeping with the statement above, try to imagine that you actually see yourself living and working to maintain your place in any of these - what are your usual situations, what will be your current concerns and what will you speculate?

Source:
No. 1: Compassion Intl. (2000s), *Sri Lanka Eastern house sliding*, Compassion (website), No. 2: Unknown (2000s), *Kings Road, Hurst Knoll*, Ashton-under-Lyne.com (website). No. 3: Unknown (2000s), *17 Best ideas*

2.1.4 How to practice a theory?

How does one practice (referring to implementation of theory)? Sue Penna (2004) (referring to society) states that the current line of the method of executing theories seems to be “mechanistic injuction to “apply theory to practice”” as explained in the conclusion of the paragraph before this paragraph. *(See Figure 14)* Such approach is found reliable for testing the new hypothesis to search for missing relationships as in “I never thought of that before!”, but not useful for end use application.[10] Sue Penna (2004) then indicates that the ideal

[10] Referring to “generalised steps required to establish a scientific theory”, William K. Tong (2003) states that, “Test (which can be construed to mean ‘implement’) the hypothesis by collecting more data to see if the hypothesis continues to show the assumed pattern. If the data does not support the hypothesis, it must be changed, or rejected in favor of a better one. In collecting data, one must NOT ignore data that contradicts the hypothesis in favor of only supportive data.” End use application of an untested theory will lead to “great misery to those subject to theory application.” according to Sue Penna (2004). She cites the “mechanistic injuction to “apply theory to practice” of Marxist theories by communists as an example. She stated “Several events in Europe contributed to a questioning of the application of theory to practice. The establishment of a communist society based upon the premises of Marxist theory was one such event. As the mass exterminations, abuses of power and repressions of the communist state came to widespread notice, so did the rationales underlying them. The communist leadership, following particular strands of Marxist theory, imposed upon populations conditions which, in theory, were necessary for the development of a communist society. Those individuals who did not fit the predictions of theory, or questioned the premises upon which action was based, were considered ‘deviant’ and sent for ‘retraining’ in labour camps when they were not killed. The endless compulsory ‘self-criticism’ that members of various Marxist groups carried out was aimed at making individual behaviour conform to the tenets of theory. Yet when many thousands of individuals failed to conform, it was their behaviour that came under scrutiny, rather than the premises and assumptions of the theory, resulting in tragedy for thousands.” *(See Figure 14)*

Figure 14:
Sue Penna (2004) "Several events in Europe contributed to a questioning of the application of theory to practice. The establishment of a communist society based upon the premises of Marxist theory was one such event. As the mass exterminations, abuses of power and repressions of the communist state came to widespread notice, so did the rationales underlying them. The communist leadership, following particular strands of Marxist theory, imposed upon populations conditions which, in theory, were necessary for the development of a communist society. (…) Yet when many thousands of individuals failed to conform, it was their behaviour that came under scrutiny, rather than the premises and assumptions of the theory, resulting in tragedy for thousands."
Source:
No. 1: *Shooting into pits, Holocaust*, Huffington Post (website): Holocaust and the Muslim Guy.
No. 2: *Holodomor 1932 - 1933, Kharkiv, Ukraine,* Screen Power: Filming the Holocaust (website), October 25, 2013.
No. 3: *Cambodian Genocide 1975 - 1979,* United to End Genocide (website): Cambodian Genocide.

approach should be to “consider how adequate the application of theory to practice might be in X or Y case.” *(See Figure 15)* To consider how literally or metaphorically adequate the theory is for practice in X or Y case, she stated (referring to the subject of social services), “I would propose that social work students and, ultimately, service-users, would be better served if students were taught how theory-construction takes place and how to unpackage and critically examine theoretical edifices, accounts and the components through which they are constructed.” In conclusion, to implement or practice (a theory), (ideally) it should be done discriminately, the extent of such (application) will be based on the context surrounding the evidences or circumstances of a target case.

2.2 Which way? Theory or practice first?

From my own experience, (as I am very keen on wanting to use the most of what I get), I often never try to develop a theory of any sort until I come across a problem big or small that is urgently needed to solve, for these problems will cause undesirable outcomes should the problem be ignored, let alone practicing, that which only after I develop a theory that is closest to the truth (and only after I have failed repeatedly in the face of plausible theories that I have sourced from other or is my own invention that is not true in that specific case and

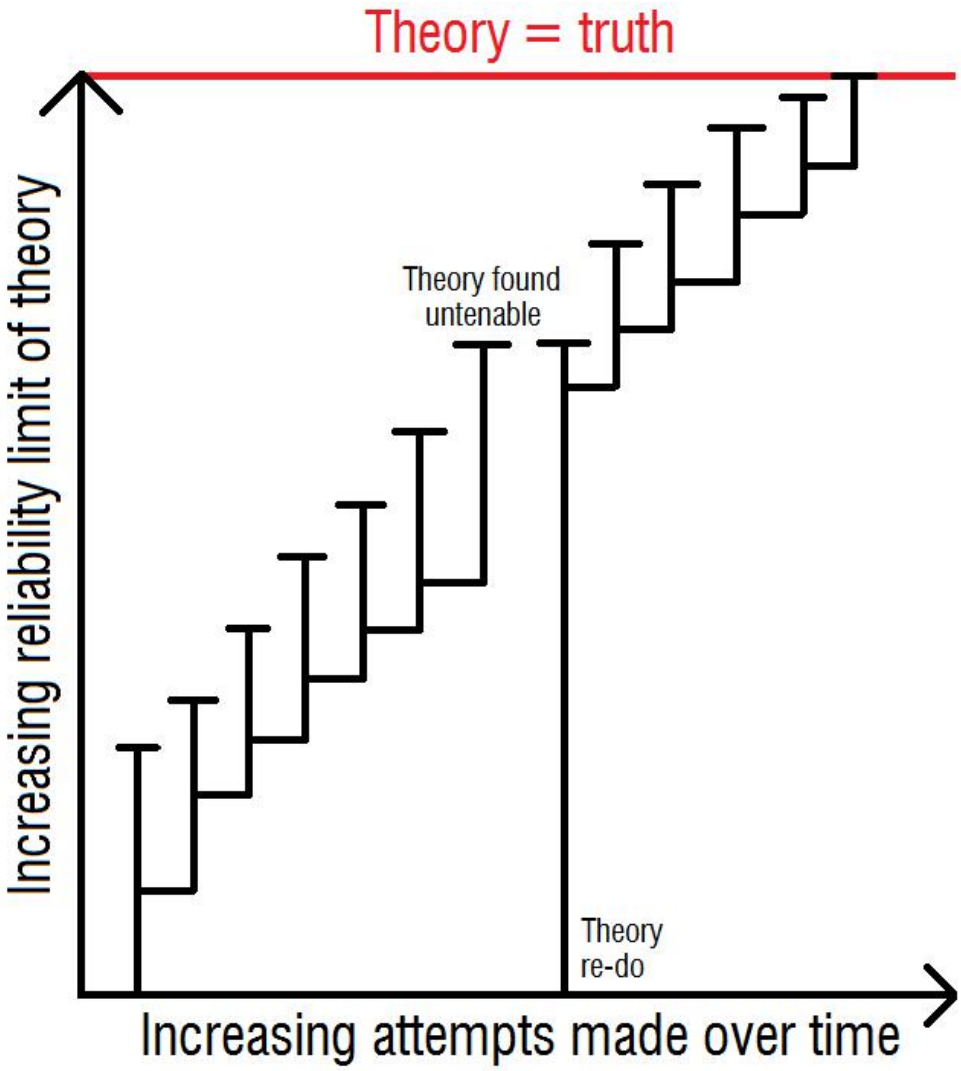

Figure 15:
Simplified universal iterative theory development.
Source: Description by Thomas Edison (1890), diagram by author.

executing interpretations of the theory that turn out to not have the desired outcome), I then practice several viable interpretations of the same theory to observe which interpretation is the one that can solve the problem that has to be urgently solved. To me, theory comes first. In order to prove or disprove my statement above, I will elucidate more with two sub-headings.

2.2.1 What is the definition of 'problem'?

First of all, what is the definition of a problem? Merriam-Webster (n.d.) defines problem as:

1	a	a question raised for inquiry, consideration, or solution
	b	a proposition in mathematics or physics stating something to be done
2	a	an intricate unsettled question
	b	a source of perplexity, distress, or vexation
	c	difficulty in understanding or accepting

Oxford Dictionaries (n.d.) explains that the word 'problem' (referring to the most essential denotation) is "a matter or situation regarded as unwelcome or harmful and needing to be dealt with and overcome." Its word origin are stated as "late Middle English (originally denoting a riddle or a question for academic discussion): from Old

French *probleme*, via Latin from Greek *problēma*, from proballein 'put forth,' from pro 'before' + ballein 'to throw.'" Cambridge Dictionary (n.d.) states that the word 'problem' essentially denotes "a situation, person, or thing that needs attention and needs to be dealt with or solved." *(See Figure 15)*

2.2.2 How to solve a 'problem'?

On how to solve a 'problem', William K. Tong (2003), referring to a problem as phenomenon, states that a problem must be defined, observed, replicated, analysed, and concluded provisionally to form a hypothesis, which then by repeated investigations, analyses, and amendments, becomes theory. Then, the theory which by now has "the power to predict the outcome of certain scenarios, … may be tested by future experiments (or in other words, apply it to the problem it is built for and its related cousins in the future)". Therefore, to him, theory comes first.[11] *(See Figure 15)* A different approach towards solving

[11] William K. Tong (2003) writes:

"Below is a generalized sequence of steps taken to establish a scientific theory:

Choose and define the natural phenomenon that you want to figure out and explain.

Collect information (data) about this phenomena by going where the phenomena occur and making observations. Or, try to replicate this phenomena by means of a test (experiment) under controlled conditions (usually in a laboratory) that eliminates interference's from environmental conditions.

problems is explained by John J. Carroll (2013) concludes that whether theory or practice come first depends on the situation. However, he notes that often, the problem he encountered during practice will not be solved by just having the problem correctly identified and the solution uses the right thing, in the right place and at the right time without any critical re-examination of even the identification of the problem itself. Often, the solution that solves the problem have undertaken a very thorough 'trial and error' stage or ad hoc practice-and-amendment cycle of hypothesis itself. [12] This is best served as an analogy e.g.: It does not

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After collecting a lot of data, look for patterns in the data. Attempt to explain these patterns by making a provisional explanation, called a hypothesis.

Test the hypothesis by collecting more data to see if the hypothesis continues to show the assumed pattern. If the data does not support the hypothesis, it must be changed, or rejected in favor of a better one. In collecting data, one must NOT ignore data that contradicts the hypothesis in favor of only supportive data.

If a refined hypothesis survives all attacks on it and is the best existing explanation for a particular phenomenon, it is then elevated to the status of a theory."

A theory is subject to modification and even rejection if there is overwhelming evidence that disproves it and/or supports another, better theory. Therefore, a theory is not an eternal or perpetual truth."

[12] John J. Carroll (2013) stated, "…our collective egos would probably like to believe that we are leading the charge from the front to build theory and inform the practice. We are the light that shows the way. We are the front of knowledge for the public sector and nonprofits. In the many hundreds or thousands (seemed like *hundreds* of thousands) of hours of meetings I spent in the practice, I can never recall a supervisor or manager asking how the theory was informing what we should do next or how academia prepared us for the challenges that face us. Usually, it was this issue or crisis that had to be fixed yesterday; go find someone else who is doing it right and borrow liberally (read: copy) from them. In government, we learned there is no such thing as an

matter that whether the man sinks in the depths of mud because there is another creature down below that grabs the man down, or the pool is actually deep enough to sink a man in. What matters that when a man/women suddenly has a problem, the best solution is that we try to solve the man's problem using whatever hypothesis that are most immediate to us while at the same time, by each attempt, we gradually change our hypothesis to arrive at the ad hoc, context-driven theory that came closest to the reality of the case. The solution that the theory gave usually solves the problem. *(See Figure 15)* Then in order for these 'best practices' to have a universal context, they are recompiled back in written form by posing back these findings into a question and answer guide that can be universally applied to any related problem.

2.2.3 Conclusion

Therefore, in conclusion, theory came first, albeit using a rudimentary hypothesis and a rudimentary analysis and verification method early on.

original idea. Someone else has already thought of it and struggled through the trial and error (we like to call it, "best practices")."

2.3 Which way ends? Theory or practice last?

For myself, which way will it end depends on whether it is speculative, descriptive or constructive theory. [13] If it is a speculative or descriptive theory then the practice of the theory will be its end. If it is a constructive theory, then the publishing of the theory is the end. Thomas Edison (1890) [14] states that in the end, the practice will be its end, for if we constantly theorise and practice it onto a problem in an

[13] Michael Leslie (1996) : "Three stages of theory development in any new 'science': 1) Speculative - attempts to explain what is happening. 2) Descriptive - gathers descriptive data to describe what is really happening. 3) Constructive - revises old theories and develops new ones based on continuing research."

[14] On his years of research in developing the electric light bulb, as quoted by George Parsons Lathrop, "Talks with Edison", Harper's magazine, Vol. 80 (February 1890), p. 425.:

"During all those years of experimentation and research, I never once made a discovery. All my work was deductive, and the results I achieved were those of invention, pure and simple.

I would construct a theory and work on its lines until I found it was untenable. Then it would be discarded at once and another theory evolved. This was the only possible way for me to work out the problem. …

I speak without exaggeration when I say that I have constructed 3,000 different theories in connection with the electric light, each one of them reasonable and apparently likely to be true. Yet only in two cases did my experiments prove the truth of my theory.

My chief difficulty was in constructing the carbon filament. . . . Every quarter of the globe was ransacked by my agents, and all sorts of the queerest materials used, until finally the shred of bamboo, now utilized by us, was settled upon."

infinite cycle, eventually we will have massive amounts of data [15] (explaining what happened, its successes and its failures [16]), either proving or disproving a theory), from so many applied theories, that the theoretical solution can be worked out by recognising what works in

[15] Chris Anderson (2008) on The End of Theory: The Data Deluge Makes the Scientific Method Obsolete published in Wired website:

"There is now a better way. (…) "Correlation is enough." We can stop looking for models. We can analyze the data without hypotheses about what it might show. We can throw the numbers into the biggest computing clusters the world has ever seen and let statistical algorithms find patterns where science cannot.

The best practical example of this is the shotgun gene sequencing by J. Craig Venter. Enabled by high-speed sequencers and supercomputers that statistically analyze the data they produce, Venter went from sequencing individual organisms to sequencing entire ecosystems. In 2003, he started sequencing much of the ocean, retracing the voyage of Captain Cook. And in 2005 he started sequencing the air. In the process, he discovered thousands of previously unknown species of bacteria and other life-forms.

If the words "discover a new species" call to mind Darwin and drawings of finches, you may be stuck in the old way of doing science. Venter can tell you almost nothing about the species he found. He doesn't know what they look like, how they live, or much of anything else about their morphology. He doesn't even have their entire genome. All he has is a statistical blip — a unique sequence that, being unlike any other sequence in the database, must represent a new species.

This sequence may correlate with other sequences that resemble those of species we do know more about. In that case, Venter can make some guesses about the animals — that they convert sunlight into energy in a particular way, or that they descended from a common ancestor. But besides that, he has no better model of this species than Google has of your MySpace page. It's just data. By analyzing it with Google-quality computing resources, though, (…) biology (has advanced) more than (…) (what has been done in past centuries)."

[16] How do you know which is a success and which is a failure?

Answer: These are not stated, but indicated with proofs and evidences of loopholes and questionable events, meaning, that the events has several critical considerations not taken into account.

every iteration of each applied theory. [17] What works is kept and applied and what does not work is discarded without regard for theory construction. *(See Figure 15)* Eventually, the ultimate theoretical solution is applied (after a long and arduous cycle) and the solution works in practice, solving the 'problems'. [18] Sue Penna (2004) has indicated that the practice will be the end of a problem by stating, "At the beginning of this piece I suggested that we all use theory in our everyday lives. Given that this is so, and that theory permeates every aspect of academic work, policy implementation and practice initiatives, even when it is tacit and unacknowledged, …"

In conclusion, the end to speculative and descriptive theory will be the formation of best practices of the theory concerned. The end of a constructive theory will be the submission of the theory concerned, replacing an old theory.

[17] Another example will be Andrew Wiles's proof of the Fermat's Last Theorem. Gina Kolata (1993) has stated in The New York Times: "Dr. Ribet estimated that a tenth of one percent of mathematicians could understand Dr. Wiles's work because the mathematics is so technical. "You have to know a lot about modular forms and algebraic geometry," he said. "You have to have followed the subject very closely.""

[18] Please note that the theoretical solution will come about without a warning, often posing as another iteration of latest theory during another test of universality of theory application.

2.4 The history of architecture.

2.4.1 The pattern of civilisation throughout history

Arnold J. Toynbee in his Study of History, Vol. I - Vol III (Oxford University Press, 1934), summarily argues that several earliest civilisations after prehistory came about from races who respond successfully to challenges, one after another. These successes, Toynbee argues, is driven by "Creative Minorities": those who find solutions to the challenges, who inspire (rather than compel) others to follow their cultural lead. The challenges are not excessively difficult that they destroyed the whole of the race, and are not excessively relaxed that the race stagnated. *(See Figure 16)* These races, in facing these challenges, are facing different environments and different approaches to the challenges they face. Thus, they develop in different ways, according to Arnold J. Toynbee.

I would like to argue that it is when they wished to celebrate their development for themselves and their future generations that they…

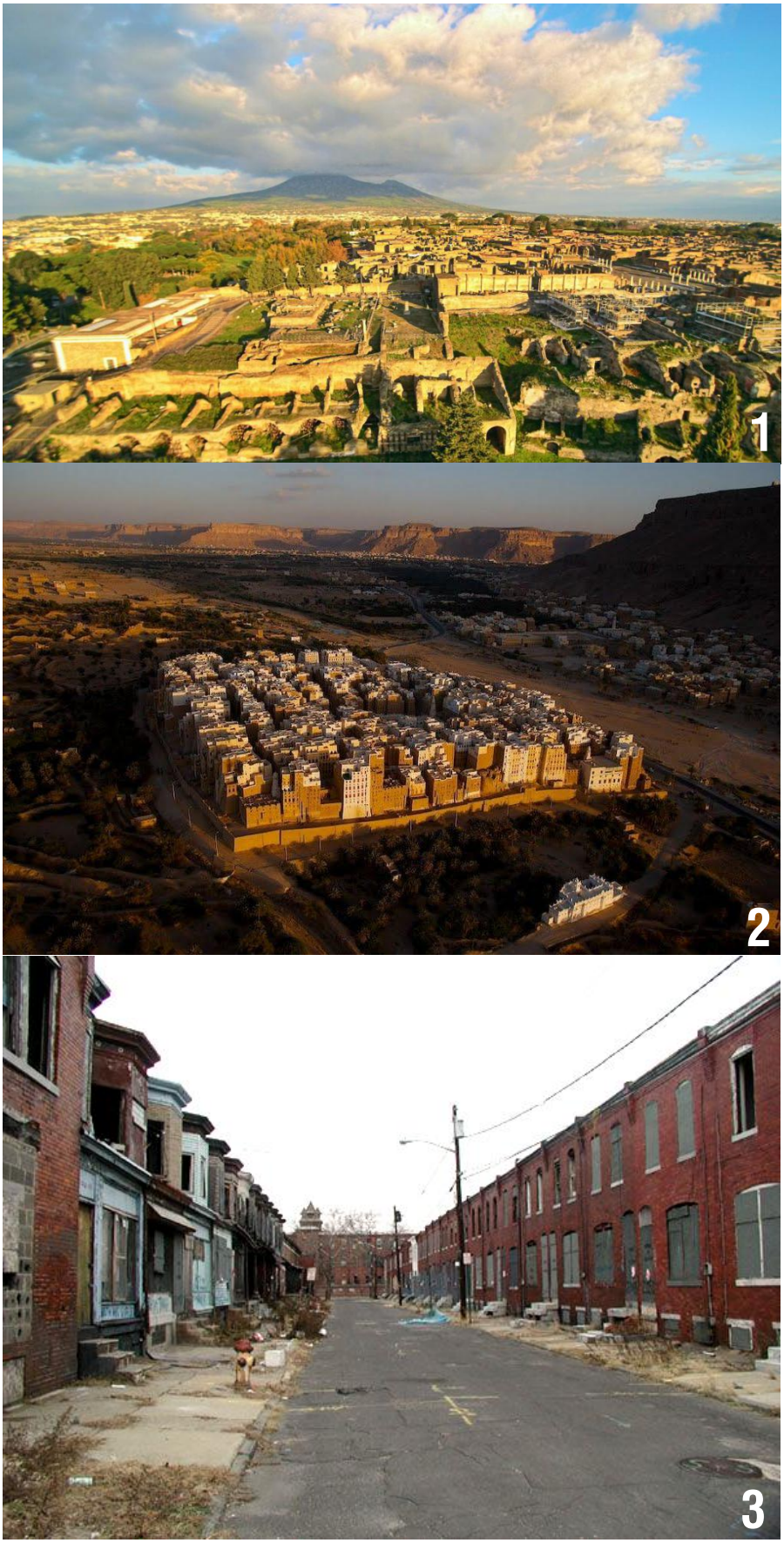

Figure 16:
No. 1: Excessive challenge - humans destroyed.
No. 2: Golden Mean challenge - humans thrive.
No. 3: Relaxed challenge - humans stagnate.
Source: No. 1: ElfQrin (username) (2015), *Ruins of Pompeii with the Vesuvius,* Wikimedia Commons (website). No. 2: Unknown (2014), *Shibam, Yemen,* Bayou Renaissance Man (website). No. 3: Phillies1fan777 (username) (2009), *Camden NJ poverty,* Wikimedia Commons (website)

…began to develop edifices. An edifice, which comprises of orders and customs, governed by psychology in symbiosis with available logic capacity, is what we call art. *(See Figure 17)* There are arts, however rough and rudimentary, in every race because one cannot even survive without a certain way to obtain food, and that 'certain way' can arguably be called art (a.k.a. problem-solving). However, in races which have build a civilisation for themselves, arts[19] so thoroughly surrounds every aspect of their life and consequently made visible in the form of subjects related to each aspect, that it becomes a full-time job in itself. This 'full-time job' is what we recognise by another word: culture.

The earliest attempts on proper all-purpose all-round philosophy of built environment have been developed from the early coagulation of these races, where such concerns are yet to be documented, and was constantly changed through a series of experiences faced by them, and finally documented when such experiences no longer come as frequently, and is on the verge of losing if not preserved in material form. Eventually, the version that one uses should the need arise will be based on the content which is present in material form, since iterations…

[19] Art for example: The art of making papers, the art of gardening, the art of woodworking, the art of calligraphy, the art of designing buildings, the art of spirituality.

	WESTERN	JAPANESE	MIDDLE EAST
CONCERNS	Suffocation from lack of air circulation in over-developed towns. Pollution from industries and disorder from all kinds of commerce, industry and trade.	Feet wet and dirty from moist ground. Some sections had unwanted things in unwanted positions. Forest too dense to appreciate nature.	Exhaustion from very sparse environment and hot-arid climate. Environment too uneven, causing confusion and perplexed mind.
THEORIES	Allocation of some public parks, building laws decide minimum standards for air circulation. Industries had to build a distance away from homes.	Creation of stone gardens. Elements that make up a garden to be placed precisely at the right spot. Garden to be sparse but arranged in a very insightful way.	Garden with plants, and often watered. Garden to be a special place surrounded by human settlements, using a very formal composition to influence order on mind.
PRACTICE			

Figure 17:
The art of gardening, using three races as examples.
Source: Western: Concern picture: Unknown (1907), *the view from Newport Bridge in Middlesbrough*, British History and the Census (website). Practice picture: William Scherer (2000s), *Cenral Park Kick*, Ponto at NYC (website). Japanese: Concern picture: keio (2000s), Aokigahara Forest, flickr (website), Cquest (username) (2007), *Ryoan-ji, Kyoto zen garden*, Wikimedia Commons. Middle East: Concern picture: Brocken Inaglory (2007), *Sand Dunes in Death Valley National Park*, Wikimedia Commons. Practice picture: Unknown (n.d.), *The verdant, shady inner courtyard of a Mamluk Townhouse, Cairo,* Cultural Kiosk: Traditional Islamic design – gardens and water (website) (2012).

…that came before that are essentially does not exist, either intentional or not.

Across all cultures, the shelter aspect, to me, is one of the basic arts of humanity, the practice of it which is called by the word 'architecture', due to the common need for dry and safe environment, and being most common, subjects related to shelter tends to be developed by each races separately with great amounts of variation as to the mechanics used.

2.4.2 Occurrences from prehistory until Ancient Rome's demise (5th century)

According to Wikipedia (2017), itself citing several publications[20], stated, "In Southwest Asia, Neolithic cultures appear soon after 10,000 BC, initially in the Levant (Pre-Pottery Neolithic A and Pre-Pottery

[20] *"The Old Copper Complex: North America's First Miners & Metal Artisans"*. Retrieved 10 August 2015.

Song, Jeeun. *"The History of Metallurgy and Mining in the Andean Region"*. World History at Korean Minjok Leadership Academy. Korean Minjok Leadership Academy. Retrieved 10 August 2015.

Choi, Charles Q. *"Pre-Incan Metallurgy Discovered"*. Live Science. Live Science. Retrieved 10 August 2015.

Maldonado, Blanco D. (2003). *"Tarascan Copper Metallurgy at the Site of Itziparátzico, Michoacán, México"* (PDF). Foundation for the Advancement of Mesoamerican Studies. Retrieved 22 January 2016.

Neolithic B) and from there spread eastwards and westwards. There are early Neolithic cultures in Southeast Anatolia, Syria and Iraq by 8000 BC, and food-producing societies first appear in southeast Europe by 7000 BC, and Central Europe by c. 5500 BC. (…) With the exception of the Andes, the Isthmo-Columbian area and Western Mesoamerica (and a few copper hatchets and spear heads in the Great Lakes region), the people of the Americas and the Pacific remained at the Neolithic level of technology up until the time of Western contact." *(See Figure 18)*

In antiquity (the first civilisations), along with the first functioning societies[21], came along the first properly planned buildings[22], the first properly planned urban plans[23], and the first written accounts regarding the architecture[24] of built environment has been written[25]. In these civilisations, there are already people who are either rich or poor, and the built environment reflects that, in the form of two different approaches to private sector architecture, that is the worker's architecture and the palatial architecture. However, at that time, the…

[21] Ancient Mesopotamia, Ancient Egypt, Ancient Greek, Ancient Persian, Early Indian, Early Chinese, Incan.

[22] Public architecture of Ancient Egypt, e.g. Giza Pyramids *(See Figure 19)*, Luxor Temple.

[23] Towns of Indus, e.g.: Harappa *(See Figure 20)*, Mohenjo-Daro.

[24] See footnote no. 1.

[25] Hammurabi Laws. *(See Figure 21)* Laws relating to the responsibility of the architect to his client's building. The architect is sentenced to death if the client's building collapses.

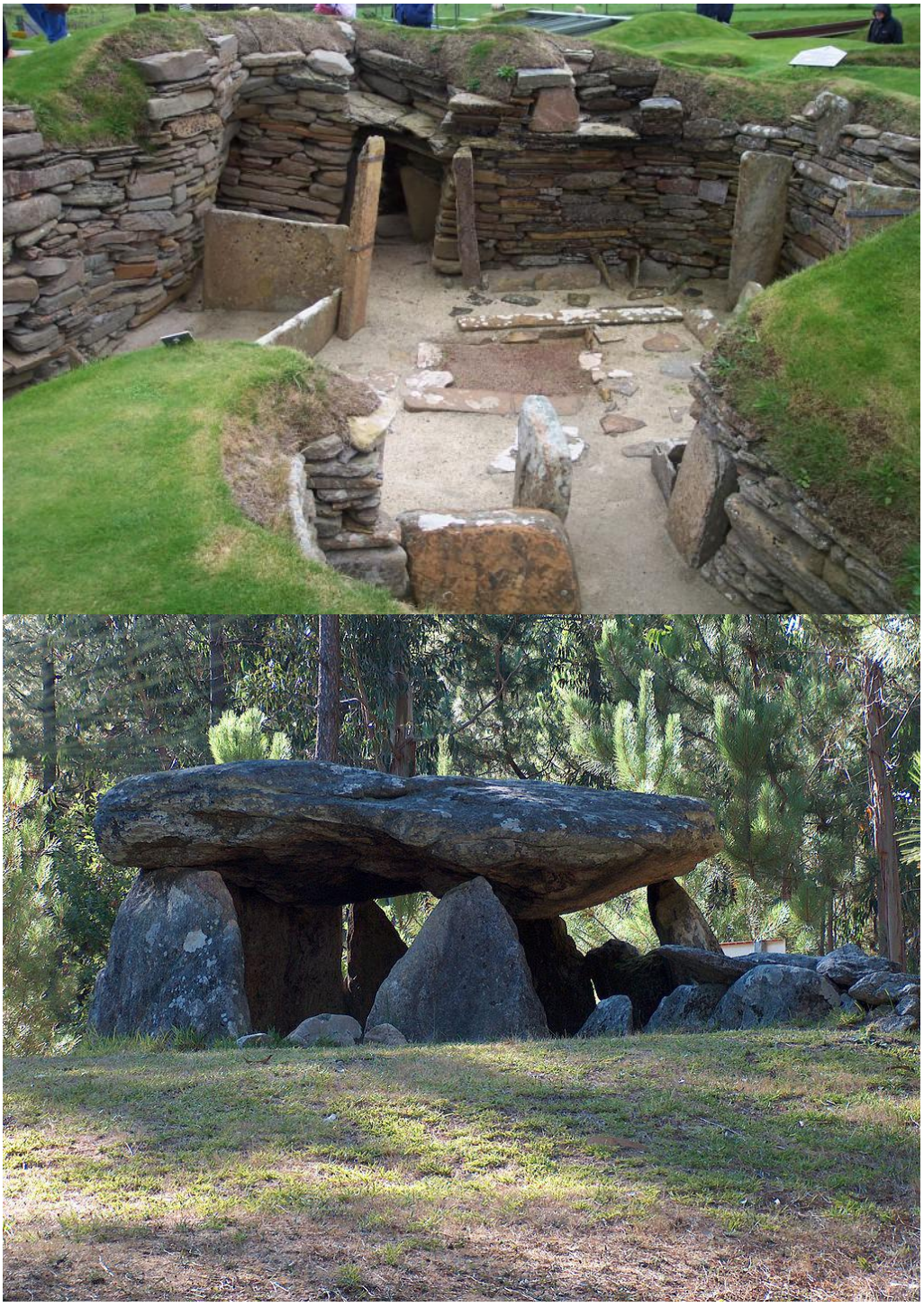

Figure 18:
Above: Neolithic excavations at Skara Brae on Orkney in Scotland. Below: A dolmen at Couto Esteves, Portugal
Source: Above: Dr. F. Burka (2002), *Neolithic excavations at Skara Brae on Orkney in Scotland,* Wikimedia Commons (website). Below: João Carvalho (2005), *A dolmen at Couto Esteves, Portugal,* Wikimedia Commons (website).

Figure 19: All Giza Pyramids in one shot.
Source: Ricardo Liberato (2006), *All Giza Pyramids in one shot,* Wikimedia Commons (website).

Figure 20: The ruins of Harappa.
Source: Above: Unknown (2008), *Harappa,* National Geographic (website).

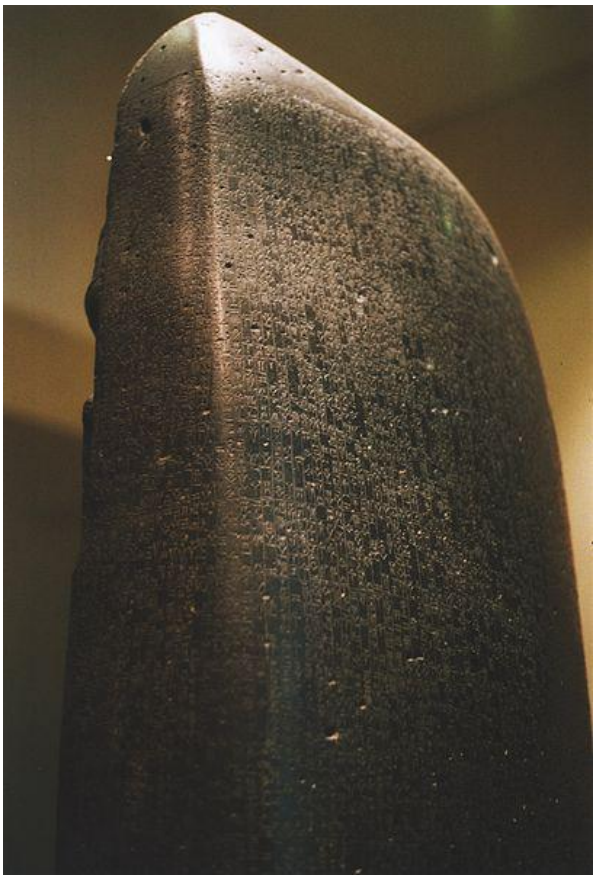

Figure 21: The Hammurabi Code, between circa 1792 - 1750 BC
Source: Rama (username) (2000s), *Code of Hammurabi,* Wikimedia Commons (website).

…most important structures are the public architecture, which essentially is palatial architecture with the meaning of worker's architecture.

In 27 B.C., Augustus organized the Greek peninsula as the province of Achaea. Later, Ancient Rome acquired Ancient Egypt and future Byzantine as its territory. Thus comes Roman civilisation. Many innovations of concrete technology is founded in Ancient Rome *(See Figure 22)*. The innovations somewhat stagnate[26] until Ancient Rome's

[26] Ancient Romes did discover marble, but apparently they did not do much with it. One clue to the quality of Roman's design (Not execution. They are always first-rate.) is stated by Charles-Edouard Jeanneret (1924): "In sum, they build superb chassis but designed dreadful coachwork like the landaus of Louis XIV."

Figure 22: Roman innovations: Dome, arch, vault

Source: Dome: Matthias Kabel (2008), *complete cupola of Pantheon Rome,* Wikimedia Commons (website). Arch: Nicolas Boullosa (2008), *Ancient Roman triumphal arch of Medinaceli. Province of Soria, Spain*, Wikimedia Commons (website). Vault: Dogears (2006), *Upper level loggia of the Basilica Palladiana, the former Palazzo della Ragione by Andrea Palladio*, Wikimedia Commons (website).

…demise at around 500 A.D. The Chinese and Indian civilisation, though subject to the same kind of administration changes as ancient Rome, culturally they are stabilising, however, and has produced literature of their own too. In terms of the literature, I will refer most often to three authoritative sources of design semantics: Vaastu Shastra, Feng Shui, and De Architetura, which was produced around 0 to 300 A.D:

1. Vaastu Shastra is basically a textual version of Vaastu Vidya, which is the broader theory of architecture and design from ancient India. It is the Indian version of environmental design semantics. Vaastu Shastra as it is today comprises propositions of idea and concepts of arrangements of space and form with the theme of manipulation, significance, importance, regulation, and delegation. Tools and guides of mathematics and geometry, construction, geology, and symbolism/representation are employed in a specific way to assist in planning to ensure that the temple or building will be fit for occupying to ensure safe and comfortable use. *(See Figure 23 and 24)*

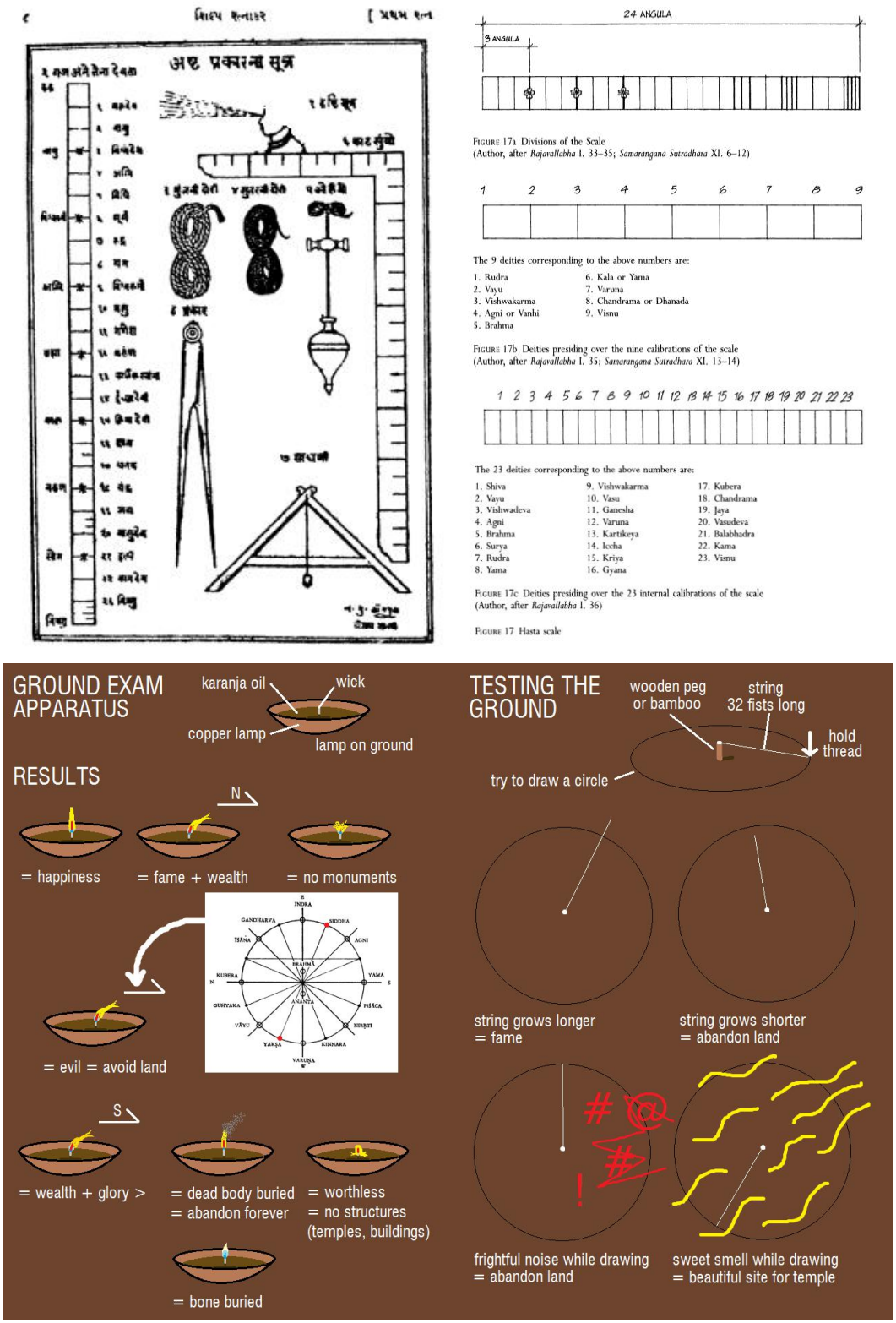

Figure 23: What you need to build a structure in accordance with Vaastu Shastra: 1. Apparatus for site analysis and scales for on-site construction, and 2. knowledge of conclusions prescribed of all phenomena of nature, special Vaastu Shastra proportions and combinatronics of geometry and proportion, and … (see Figure 26)

Source: Above: Vibhuti Chakrabarti (1998), *Indian Architectural Theory: Contemporary Uses of Vastu Vidya*, Psychology Press. Below: Alice Boner, Sadāśiva Rath Śarmā (1966), *Silpa Prakasa Medieval Orissan Sanskrit Text on Temple Architecture,* Leiden: E. J. Brill.

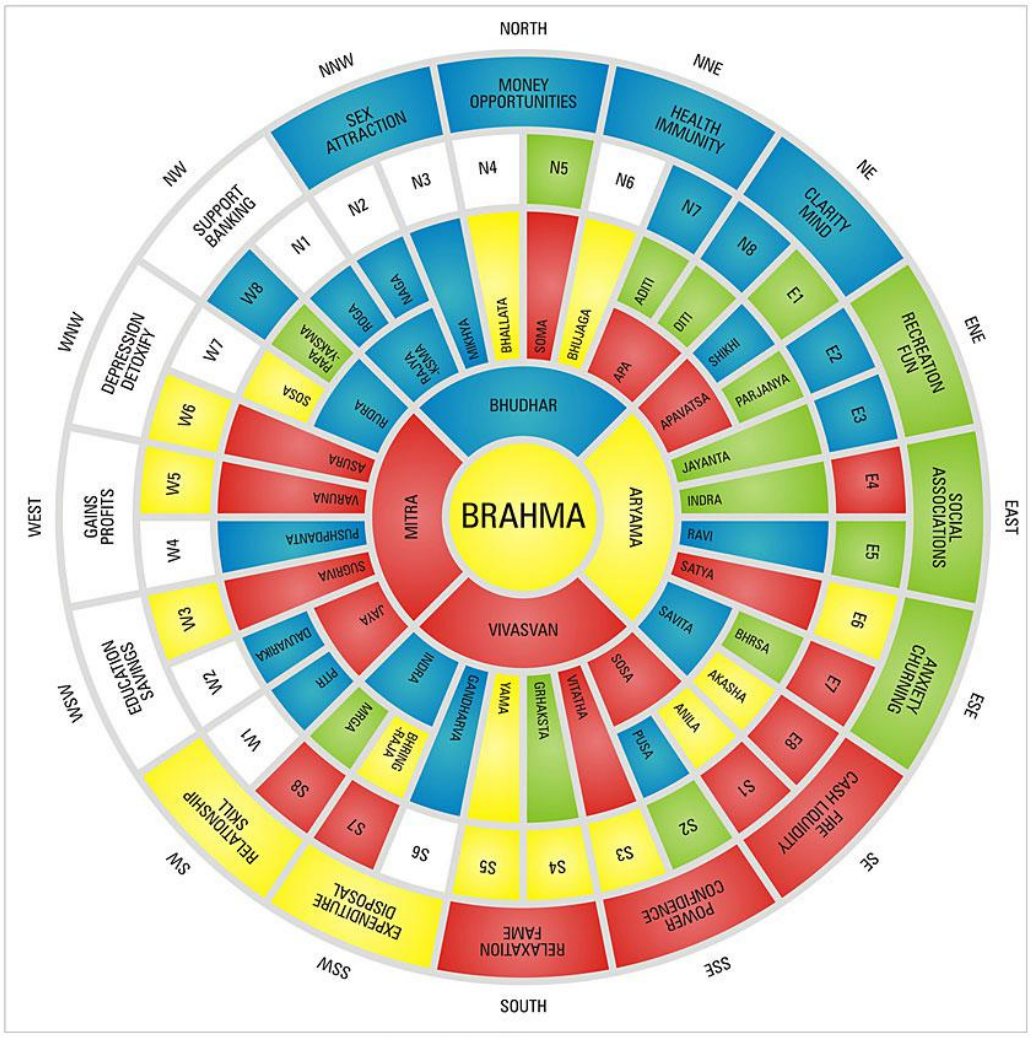

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Figure 24: … (cont'd from Figure 23) the position of space in relation to Hindu polytheism and its characters and its effects on these character of deities on human psychology and phenomena complex (that is explained without scientific rigor).

Source: Above: Vastushastri Khushdeep Bansal (uploaded 2015), *Vaastu Shastra Powers*, vastutipsforhome.com (website). Below: Unknown (uploaded 2011), *Vastu Shastra Consultancy Remedies*, nicespace.me (website)

a) However, the content is criticised in recent days by some Indians as pseudoscience. Jayand Narlikar (2009) writes that Vaastu does not have any "logical connection" to the environment and cites one example: "sites shaped like a triangle ... will lead to government harassment, ... parallelogram can lead to quarrels in the family." Pramod Kumar (2013) says: "Ask the Vaastu folks if they know civil engineering or architecture or the local government rules on construction or minimum standards of construction to advise people on buildings. They will get into a barrage of "ancient" texts and "science" that smack of the pseudo-science of astrology. Ask them where they were before the construction boom and if they will go to slum tenements to advise people or advise on low-cost community-housing—you draw a blank.[27]"

2. Feng Shui is the Chinese version of environmental design semantics. The literal meaning in English is ‘wind-water’. Its aim, according to Ernest J. Eitel (1873), is “supposedly to teach people where and how to build a tomb or to erect a house so as to insure for those concerned everlasting prosperity and happiness.” In other words, it is basically a set of propositions of ideal arrangement of objects with respect to the environment. In planning these ideal arrangements with

[27] Is it because it is all proposition without proof?

accuracy, one must gather information about the flow of the environment around the object and in its interiors according to four divisions outlined: *Li*[28], *Su*[29], *Qi*[30], and *Wuxing*[31]. *(See Figure 25)* Overall, the theme of flow, energy, elements and harmony is prominent in Feng Shui. The origins of Feng Shui, according to Ernest J. Eitel (1873), "was derived chiefly from the teachings of Choo-he and other philosophers of Sung dynasty." According to him, the "most prominent ideas and practices" can be followed "up to ancient times" that grew out of "excessive veneration of the spirits of ancestors", which then "connect this supposed influence of deceased ancestors with the locality of their tombs and the topographical character of the surroundings of each grave."

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[28] Ernest J. Eitel (1873): *Li:* "…the general principles of ruling nature, with the laws of the physical universe."

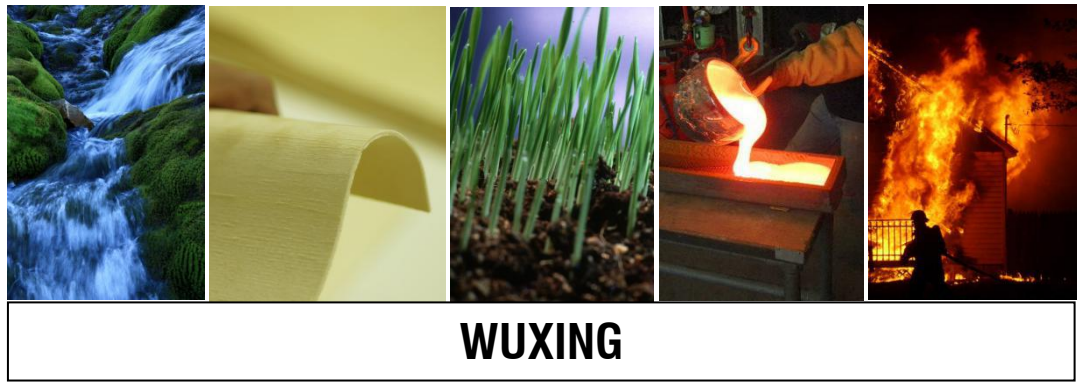
[29] Ernest J. Eitel (1873): *Su:* "…the numerical proportions of nature".

[30] Stephen L. Field (2001): "*'Qi'* is the *sine qua non* for any discussion of Feng Shui." The recent meaning is generally 'flow'. "During the Warring States and the early Han period, qi gained cosmic significance as the "universal fluid, active as Yang and passive as Yin, out of which all things condense and into which they dissolved." (Graham, Disputers, 191)". *(See Figure 25)* However, it used to mean "something like the Greek *'pneuma'*: wind, air, breath."

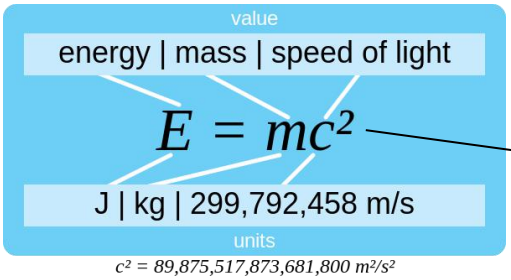
Ernest J. Eitel (1873): *Qi:* "…the doctrine of nature's breath."

[31] Ernest J. Eitel (1873): *Wuxing:* "…the doctrine of nature's outlines and form of appearance."

Stephen L. Field (2001): The *wuxing*, or "five movements," (…) In its first explication *wuxing* was understood as natural processes such as water sinking, fire rising, wood bending, metal molding, and soil growing." *(See Figure 25)*



WUXING



LI

QI

SU

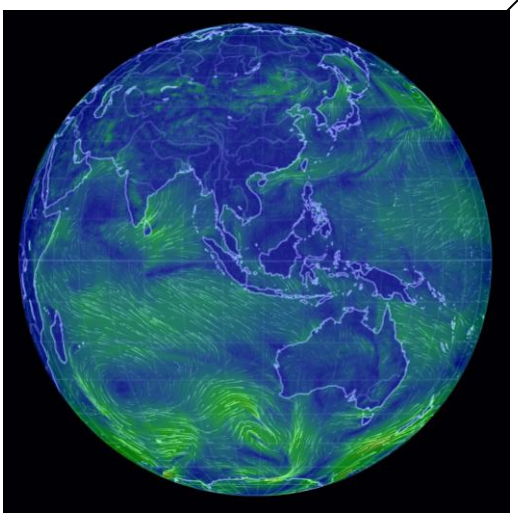


Figure 25: The divisions of Feng Shui.

Source: River flowing: Freidrick (2012), *Flowing river,* DeviantArt (website). Wood bending: Rob Thompson (2010), *Bending wood veneer*, Materials & Matter for Curious Designers (website). Grass growing: CSIRO (publisher) (2000), *The second in two shots of a time delay series of grass growing*, Wikimedia Commons (website), Unknown (n.d.), *Sand casting*, buyCASTINGS.com (website). Fire burning a home: Unknown (n.d.), *Fire Facts by the USRFD,* Upper Saddle River Fire Department (website). Energy-mass equivalence equation: JTBarnabas (username) (2013), *Explication of the equation E=mc²,* Wikimedia Commons (website). Earth: Cameron Beccario (2017), *earth :: a global map of wind, weather, and ocean conditions* (website). Thermometer: CaskWidge (2000s), *No.44 Thermometer*, CaskWidge (website).

He also noted that the recognisable system of physical science as it is today has its origin “beyond that period so justly called the Augustan age of Chinese literature.” He opined the factor that causes the approval of every Chinese: “Its origin can indeed be traced back, as I have shewn, to remote ages, but popular opinion connects the origin of Feng-shui with the ancient Hwang-ti, and looks upon this system as being as ancient as China itself (…), and the fact that the whole system of Feng-shui is in perfect unity with the vagaries of Tauists and Buddhists on the one hand and Choo-he's modern philosophy on the other. Feng-shui is indeed the refined quintessence of Tauistic mysticism, Buddhistic fatalism and Choo-he's materialism, and as such it commands if not the distinct approval yet the secret sympathy of every Chinaman, high or low.”

a) Recent criticism about Feng Shui is its irrational practices in contrast to the rational comprehension. Ernest J. Eitel (1873) admits that Feng Shui recognises “the uniformity and universality of the operation of natural laws” but noted that Feng Shui neglects “experimental but at the same time critical survey of nature in all its details”. Brian Dunning (2016) stated that “There's no real science behind Feng Shui... It's also a simple matter to dismiss the mystical energies said to be at its core; they simply don't exist.” Jon Puro (2002) states that the

> principles of Feng Shui related to living harmoniously with nature are “quite rational”, but does not otherwise lend credibility to the “nonscientific” claims.

2. De architetura (Latin for On architecture) is a treatise on architecture by Marcus Vitruvius Pollio, written between 30 to 15 BC, as a guide for building projects for Caesar Augustus the emperor, his patron. The content is basically an exposition of the solidity, honesty and poetry of Earth’s logic behind the workings of Roman engineering[32], and the logic behind the production of man-made systems that acheives set targets that results from the understanding of the position of the target (a.k.a. brief), the analysis of Earth’s systems in a set position in the environment where the brief touches on, and the judicious delegation of elements using the logic of Earth’s systems to ‘weave’ a man-made system that is solid, usable and accessible[32]. *(See Figure 26)*

[32] The way for this elucidation to happen did not happen in a straightforward way: Vitruvius had to ‘shed light’ (a more polite word than ‘praise’) to Roman and Greek know-how across disciplines e.g. engineering, geology, and architecture applied in Ancient Rome context for finding out how to use Earth’s logic to their benefit, in risk of self-aggrandisement.

[32] The way for this elucidation also did not happen in a straightforward way: Vitruvius had to make do by giving selected examples to convey the importance of designs that related to exterior and interior concerns.

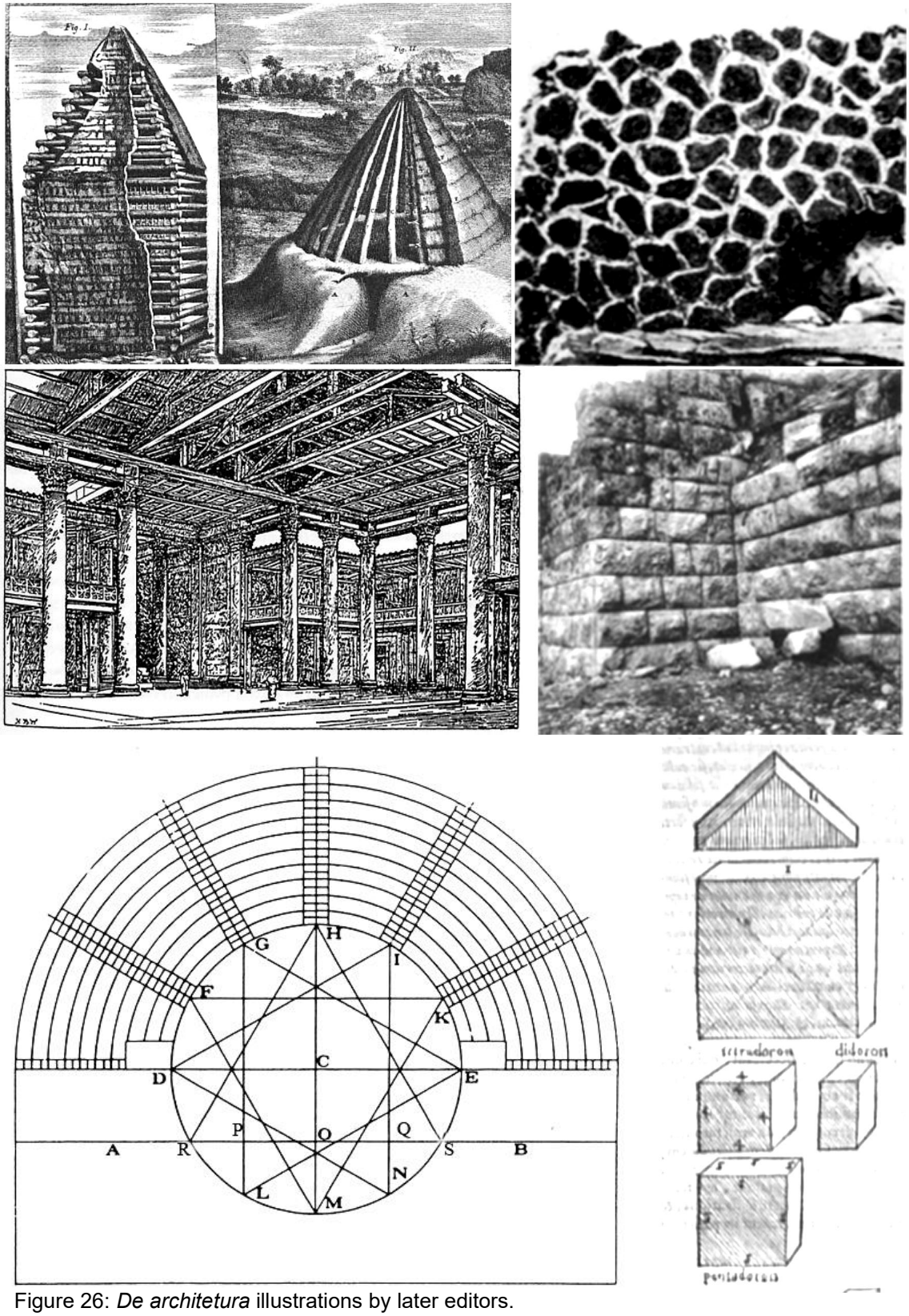


Figure 26: *De architetura* illustrations by later editors.
Source: *Les dix livres d'architecture de Vitruve, Corrigés et traduits* en 1684 par C. Perrault, Paris, 1684. Vitruvius, *De Architectura libri X*, ed. F. Granger, London, 1962. Ton Peters, *Vitruvius, Handboek bouwkunde*, Amsterdam, 1999. A.Boëthius-J.B.Ward-Perkins, *Etruscan and Roman Architecture*, Harmondsworth, 1970. A. McKay, *Vitruvius, Architect and Engineer*, London, 1978

a) Bill Thayer (2011) has commented that this is one of "…the works that give us solid technical information about what Rome was really good at, viz. the construction of her great buildings and works of engineering…", although he criticises several portions of the book. Firstly, he noted that the book is missing some important imformation on Roman public works: "If you are looking for information about the architecture of amphitheatres or circuses, or about the engineering of bridges or roads, this is not the place for it, surprisingly: Vitruvius never so much as mentions a bridge of any type, and as for his references to the others, they are very infrequent and utterly incidental." Of the same issue, in Book V, Bill Thayer (2011) commented: "Vitruvius takes particular delight in the acoustics of the theatre about which he seems to know much, much more than he has allowed himself to tell us for fear of boring us: it's a pity." Bill Thayer (2011) has also noticed that Vitruvius has an unacknowledged self-aggrandisement and frequently distracted on matters that he was supposed to elucidate concisely. On Book III, he commented: "Some comments on the chance nature of fame in the arts serve as a rather irrelevant prologue: it seems clear Vitruvius felt he had to have one." In Book I (the important part underlined): "Dedication to the Emperor;

branches of knowledge that an architect must be acquainted with; the factors involved in siting a town and designing its walls, including a rather odd extended explanation of the various winds."

2.4.3 Occurrences from Ancient Rome's demise (5th century) until the Renaissance (14th century)

After the gradual demise of Ancient Rome from 235 to 476, they were divided into several kingdoms that lasted well into 1900s (a number, like Luxembourg, still holding executive power), including Byzantine Empire, which lasted until 1453, when its capital, Constantinople, conquered by Ottoman Empire. This period from 400s to 1300s is called 'Dark Ages' in Europe. Multiple regional deviations of Ancient Rome practice have surfaced, blending with materials and techniques special to a specific region, thus Byzantine (specific to Byzantine Empire) and Romanesque (all other kingdoms) from 600s to 1000s are gradually established, gradually transitioned to Gothic in 1000s until 1500s. *(See Figure 27)* Meanwhile, Chinese civilisation have maintained and refined their practice, although Mongols ruled China temporarily as 'Yuan Dynasty' from 1260 to 1368.

Right around this time there have been a Muslim civilisation called Rashidun Caliphate in 632 to 661 after Muhammad (p.b.u.h.)'s death, and following the conquest of Sassanian Empire in Persia in 654 by Uthman r.a., the exchange between Arabs and Persians lead to spread of Islam and spread of Sassanian practice to Arabs[33]. *(See Figure 28)* Umayyad caliphate started in 661 immediately holding Rashidun Caliphate's territories. Damascus Mosque in 715 is the first mosque to assimilate the language of Sassanian architecture in public built environment. *(See Figure 29)* Umayyad caliphate ended in 750. An Umayyad prince escaped and established Emirate, then, Caliph of Cordoba in Spain from 756 until 1031. Alhambra Palace and Cordoba Mosque exemplifies the time. Abbasid Calliphate then assumed Umayyad Caliphate's territories from 756 to 1258 (reduced[34] to

[33] Sassanian practice had picked up where Ancient Persian and Ancient Rome practice (including its concrete innovations) stopped.

[34] …gradually from 861 to 945 to autonomus dynasties, examples most related to our scope:

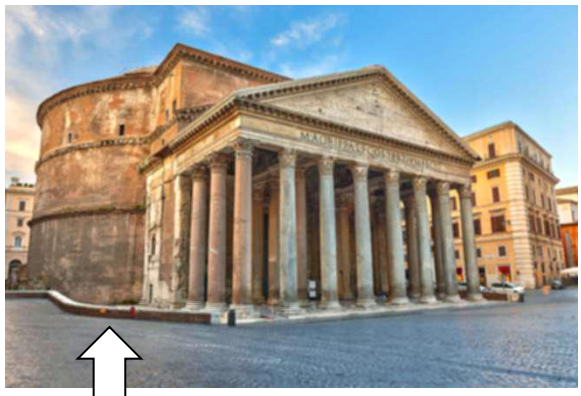
In Egypt, Fatimid Caliphate to Ayyubid Dynasty to Mamluk Sultanate (from Abbasid rulers) from 909 to 1517, with the territories absorbed into Ottoman Empire.

In Arab Peninsula, the Sharifate of Mecca ruled from 900s to 1932 with the creation of Kingdom of Saudi Arabia.

In Persia, from Tahirid Dynasty (821), shuffling between multiple dynasties and single dynasty, through Ghurid Sultanate (879 to 1215), which then divided to Delhi Sultanate in northern India (from 1206 to 1526, then combined with Rajput states and Bengal Sultanate to form Mughal Empire from 1526 until 1857), and Khawarizmian dynasty in Khorsan and Persia until Illkhanate (conquest and first ruler, Hulagu Khan from 1256) to 1353 during Black Death from 1338 to 1353, and Timurid and Safavid Empire from 1370 to 1736 untouched by Ottoman Empire, then

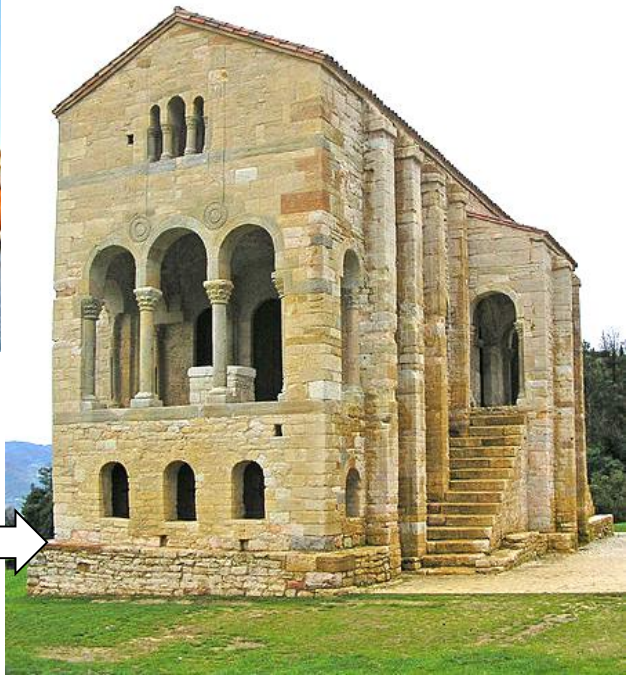
ceremonial authority from 1250 to 1517). During Abbasid Caliphate, Middle East civilisation undergoes advances in science and technology. *(See Figure 30)* Built upon from the work of Ancient Greeks, Muslim scientists during 700s to 1200s continue advances in science e.g.: algebra, glass, astrolabe, medicine until sharply ended under the conquest, and destruction of treatises, books of all works of all sorts by Hulagu Khan and his soldiers in Baghdad in 1258, and the rise of Europe's Renaissance in 1300s. Abbasid Empire broke into several caliphates, emirates, and empires. Its rulers re-positioned themselves in Cairo as Mamluk Sultanate until the Ottoman conquest of Egypt in 1517. The literature from 400s to 1300s aimed at codification of architecture vocabulary and language. E.g. : *Yingzao Fashi* of Chinese civilisation. *(See Figure 31)* The situation did not change until the onset of Renaissance.

dissolving into numerous khanates from 1700s to 1900s (some absorbed by foreign nations) until the formation of Imperial State of Iran in 1925, with Pahlavi Dynasty at helm which toppled in Iranian Revolution in 1979 with the formation of Islamic Republic of Iran.



ANCIENT ROME

ROMANESQUE



GOTHIC

Figure 27: From Ancient Rome to Gothic. Note the gradual change to buildings' appearance. Source: Ancient Rome: Unknown (2013) *Pantheon Roma Alba*, Sant'Angelo Guesthouse (website). Romanesque: Alberto Imedio (2012), *Santa María del Naranco*, Wikimedia Commons (website). Gothic: Alberto Imedio (2008), *Cathédrale de Noyon*, Wikimedia Commons (website).

Figure 28: Relationship between Sassanid architecture and Umayyad architecture. Shown above is Palace of Ardashir (224 A.D.), below is Al-Aqsa Mosque (1021–1036 A.D.)
Source: Sassanid: Ali Parsa (2007), *Ardeshir*, Wikimedia Commons (website), Andrew Shiva (2013), *Israel 2013 Jerusalem Temple Mount-Al-Aqsa Mosque*, Wikimedia Commons (website).

3.2.2 WHEN DOES ISLAMIC DECORATION OCCUR?

In times of Prophet Muhammad s.a.w., Prophet's Mosque were built in a simple way as if it is just a shelter.

A model of Prophet's Mosque. Taken from http://www.islamicity.org/7942/the-form-of-the-prophets-mosque/

Umar r.a. renovated the mosque's date palm columns into wood.

An imaginary form of Prophet Muhammad's Mosque after caliph 'Umar b. al-Khattab's extension. Courtesy of the Hadarah Tayyibah Exhibition held in Madinah in 2010-2012. Taken from http://www.islamicity.org/5093/following-religion-vs-inventing-civilization-implications-for-islamic-architecture/

Uthman r.a. renovated the mosque's shelter to be make with decorated stone and lime. Its pillars are of decorated stone and its roof was made of teak.

An imaginary form of Prophet Muhammad's Mosque after caliph 'Uthman b. al-'Affan's extension. Courtesy of the Hadarah Tayyibah Exhibition held in Madinah in 2010-2012. Taken from http://www.islamicity.org/5093/following-religion-vs-inventing-civilization-implications-for-islamic-architecture/

- The first to adorn mosques was Al-Waleed bn Abdil-Malik bn Marwaan and that was at the end of the era of the Companions. A lot of the people of knowledge remained silent from rebuking that action for fear of fitnah. (Fathul Baaree 1/644)
- Umayyad mosque is one of the first mosque built by Al-Waleed to establish Muslim's rulers' tradition of building grand and lofty mosques with ample decoration.

View of the Umayyad Mosque, Damascus, Syria. By Bernard Gagnon (2010), Taken from https://commons.wikimedia.org/w/index.php?curid=12267678

The cheerful atmosphere in the large outside courtyard. Taken from http://www.stephencodrington.com/TravelDiaries/Middle_East_Travel_Diary_2010/Entries/2010/7/1_Day_14_-_Damascus,_Syria.html

Figure 29: The development of mosque architecture during Rashidun Caliphate (632 - 661) until Damascus Mosque.
Source: Report by author. All historical references and pictures by respective authors.

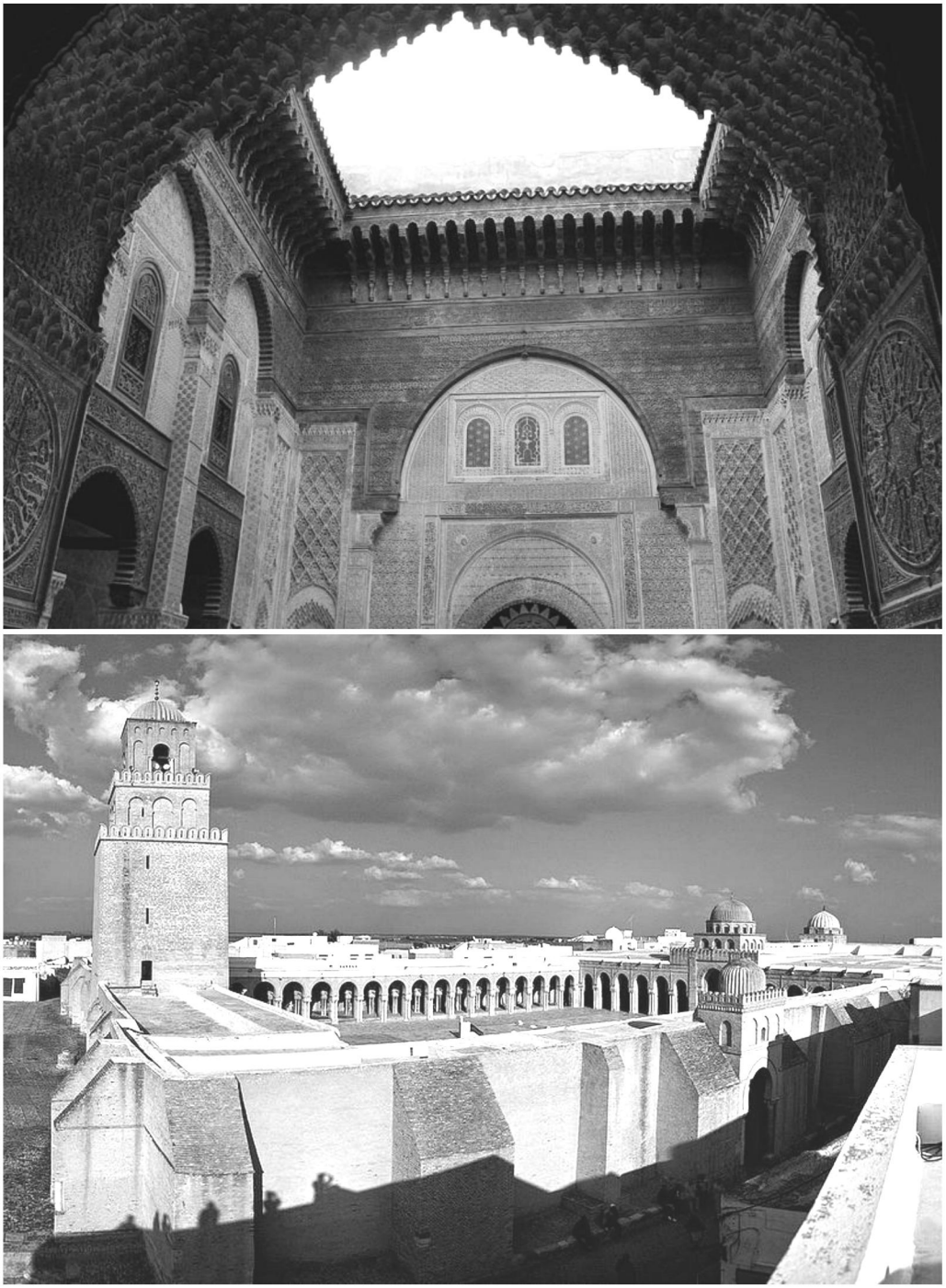


Figure 30: Middle East architecture of built environment, post-Rome-antiquity, pre-Renaissance. This is around the time of the Abbasid Caliphate.
Source: Above: Yuliya Boda (2016), *Al Quaraouiyine* (Kuwarriyun) *University in Fez, Morocco,* Wikimedia Commons (website). Below: Marek Szarejko (2008), *Great Mosque of Kairouan Panorama*, Wikimedia Commons (website).

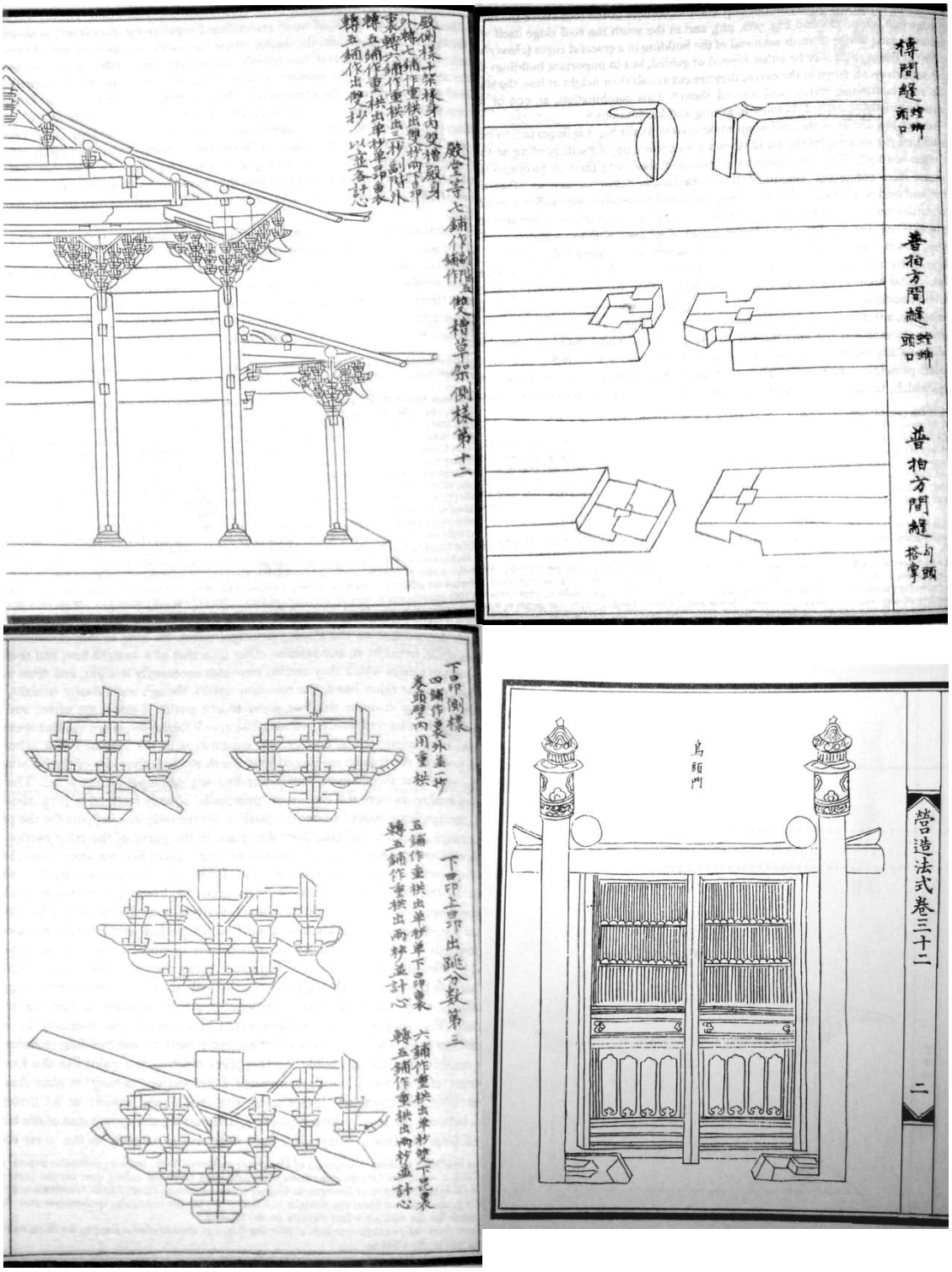


Figure 31: Some pages of Yingzao Fashi by Li Jie (1103). The Chinese version of *De Architetura*.
Source: All by Cmglee (username) (2015), Yingzao Fashi, Wikimedia Commons (website), except bottom right: Gisling (2009), *Yingzaofashi wutoumen,* Wikimedia Commons (website).

2.4.4 Occurrences from Renaissance (14th century) until the Industrial Revolution (19th century).

There happened studies done by Christian scholars in Muslim lands and religious wars sanctioned by Latin Church in 1000s to 1100s[35], and European students study knowledge in 1000s to 1300s in Middle Eastern higher learning centres, according to Wikipedia[36]. As a result, the students bring back the Muslims scholar's attitude inherited from Ancient Greeks, adding to them looking back to Ancient Rome and Greeks for inspiration, giving rise to Renaissance in 1300s, in the midst of economic recession. That results in buildings not realised until 1400s. Renaissance ends with Mannerism in 1600s. *(See Figure 32)* Examples of the literature of this time are Leonardo da Vinci in arts and technology and Andrea Palladio in built environment. *(See Figure 33 and 34)* Also, Muslim Persians spread their practice (Arab, Sassanian, Rome, Greek) in India through Ghurid Sultanate in 1000s, blending with Indian practice in 1206 to 1526, culminating in Mughal Empire practice to 1857. *(See Figure 35)*

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[35] Wikipedia (2017): "Notable examples include Leonardo Fibonacci (c. 1170 –c. 1250), Adelard of Bath (c. 1080–c. 1152) and Constantine the African (1017–1087)."

[36] Lebedel, Claude (2006), *Les Croisades, origines et conséquences*, Editions Ouest-France, p.109–111.

Ghazanfar, Shaikh M. (2007). *Medieval Islamic economic thought: filling the "great gap" in European economics*. Psychology Press. p. 126.

Figure 32: Early Renaissance, High Renaissance and Mannerism (1400s to 1600s)
Source: Above: Enne (2006), *Santa Maria del Fiore*, Wikimedia Commons (website). Middle: Spens03 (2012), *Milan Santa Maria della Crazie Bramante*, Wikimedia Commons (website). Below: Stefan Bauer (2007), *Villa Godi Valmarana, Lonedo di Lugo, Veneto, Italy*, Front, Wikimedia Commons (website).

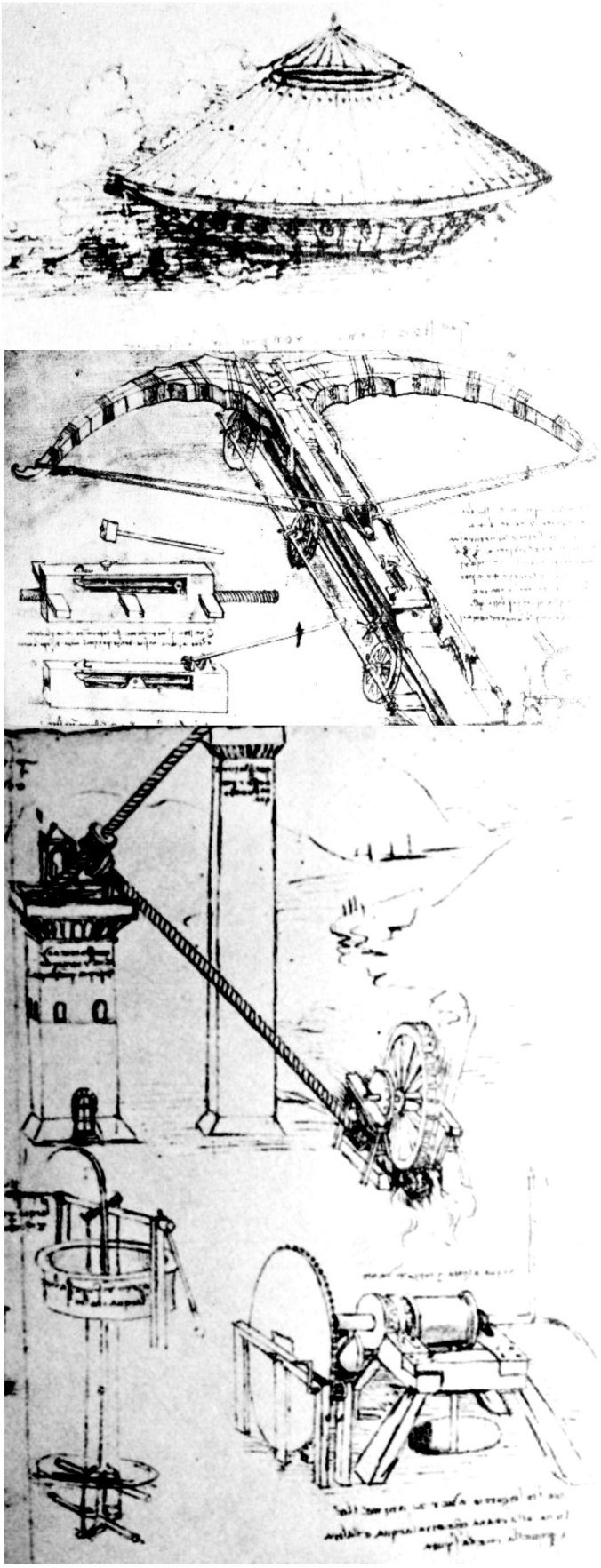
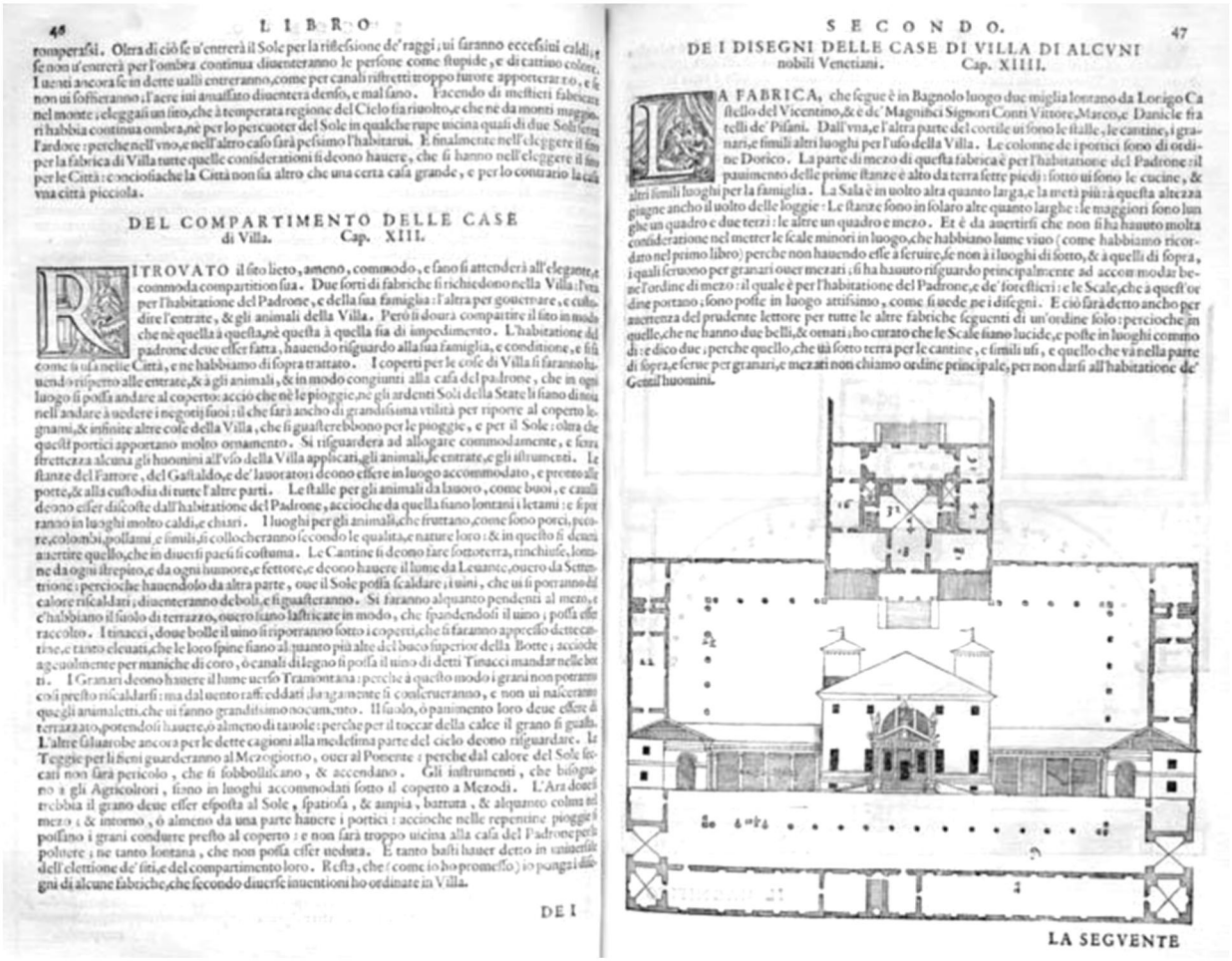


Figure 33: Sketches of machines by Leonardo da Vinci (1500s)
Source: Bortolon, *The Life and Times of Leonardo*, Paul Hamlyn.



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romperaſi. Oltra di ciò ſe u'entrerà il Sole per la riflessione de' raggi, ui ſaranno eccessiui caldi, e ſe non u'entrerà per l'ombra continua diuenteranno le persone come ſtupide, e di cattiuo colore. I uenti ancora ſe in dette ualli entreranno, come per canali riſtretti troppo furore apporteranno, e ſe non ui ſoffieranno, l'aere iui amaſſato diuenterà denſo, e mal ſano. Facendo di meſtieri fabricare nel monte; eleggaſi un ſito, che à temperata regione del Cielo ſia riuolto, e che ne da monti maggiori habbia continua ombra, nè per lo percuoter del Sole ſenta l'ardore: perche nell'vno, e nell'altro caſo ſarà peſsimo l'habitarui. Finalmente nell'eleggere il ſito per la fabrica di Villa tutte quelle conſiderationi ſi deono hauere, che ſi hanno nell'eleggere il ſito per le Città: concioſiache la Città non ſia altro che una certa caſa grande, e per lo contrario la caſa vna città picciola.

DEL COMPARTIMENTO DELLE CASE di Villa. Cap. XIII.

RITROVATO il ſito lieto, ameno, commodo, e ſano ſi attenderà all'elegante, e commoda compartition ſua. Due ſorti di fabriche ſi richiedono nella Villa: l'vna per l'habitatione del Padrone, e della ſua famiglia: l'altra per gouernare, e cuſtodire l'entrate, & gli animali della Villa. Però ſi dourà compartire il ſito in modo che nè quella à queſta, nè queſta à quella ſia di impedimento. L'habitatione del padrone deue eſſer fatta, hauendo riſguardo alla ſua famiglia, e conditione, e ſi fà come ſi uſa nelle Città, e ne habbiamo di ſopra trattato. I coperti per le coſe di Villa ſi faranno hauendo riſpetto alle entrate, & à gli animali, & in modo congiunti alla caſa del padrone, che in ogni luogo ſi poſſa andare al coperto: acciò che nè le pioggie, nè gli ardenti Soli della State li ſiano di noia nell'andare à uedere i negotij ſuoi: il che farà ancho di grandiſsima vtilità per riporre al coperto legnami, & infinite altre coſe della Villa, che ſi guaſterebbono per le pioggie, e per il Sole: oltra che queſti portici apportano molto ornamento. Si riſguardera ad allogare commodamente, e senza ſtrettezza alcuna gli huomini all'vſo della Villa applicati, gli animali, le entrate, e gli iſtrumenti. Le ſtanze del Fattore, del Gaſtaldo, e de' lauoratori deono eſſere in luogo accommodato, e preſſo alle porte, & alla cuſtodia di tutte l'altre parti. Le ſtalle per gli animali da lauoro, come buoi, e caualli deono eſſer diſcoſte dall'habitatione del Padrone, acciòche da quella ſiano lontani i letami: e ſiportranno in luoghi molto caldi, e chiari. I luoghi per gli animali, che fruttano, come ſono porci, pecore, colombi, pollami, e ſimili, ſi collocheranno ſecondo le qualità, e nature loro: & in queſto ſi deuerà auertire quello, che in diuerſi paeſi ſi coſtuma. Le Cantine ſi deono fare ſottoterra, rinchiuſe, lontane da ogni ſtrepito, e da ogni humore, e fettore, e deono hauere il lume da Leuante, ouero da Settentrione: percioche hauendolo da altra parte, oue il Sole poſſa ſcaldare, i uini, che ui ſi porranno del calore riſcaldati, diuenteranno deboli, e ſi guaſteranno. Si faranno alquanto pendenti al mezo, e c'habbiano il ſuolo di terrazzo, ouero ſiano laſtricate in modo, che ſpandendoſi il uino, poſſa eſſer raccolto. I tinacci, doue bolle il uino ſi riporranno ſotto i coperti, che ſi faranno appreſſo dette cantine, e tanto eleuati, che le loro ſpine ſiano al quanto più alte del buco ſuperior della Botte: acciòche ageuolmente per maniche di coro, ò canali di legno ſi poſſa il uino di detti Tinacci mandar nelle botti. I Granari deono hauere il lume uerſo Tramontana: perche à queſto modo i grani non potranno coſi preſto riſcaldarſi: ma dal uento raffreddati, lungamente ſi conſeruaranno, e non ui naſceranno quegli animaletti, che ui fanno grandiſsimo nocumento. Il ſuolo, ò pauimento loro deue eſſere di terrazzato, potendoſi hauere, ò almeno di tauole: perche per il toccar della calce il grano ſi guaſta. L'altre ſtanze ancora per le dette cagioni alla medeſima parte del ciclo deono riſguardare. Le Teggie per li fieni guarderanno al Mezogiorno, ouer al Ponente: perche dal calore del Sole ſecati non ſarà pericolo, che ſi ſobbollicano, & accendano. Gli inſtrumenti, che biſognano a gli Agricoltori, ſiano in luoghi accommodati ſotto il coperto a Mezodì. L'Aia doue trebbia il grano deue eſſer eſpoſta al Sole, ſpatioſa, & ampia, battuta, & alquanto colma nel mezo: & intorno, ò almeno da una parte hauere i portici: acciòche nelle repentine pioggie i poſſino i grani condure preſto al coperto: e non ſarà troppo uicina alla caſa del Padrone per la poluere: ne tanto lontana, che non poſſa eſſer uedura. E tanto baſti hauer detto in uniuerſale dell'elettione de' ſiti, e del compartimento loro. Reſta, che (come io ho promeſſo) io pongi i diſegni di alcune fabriche, che ſecondo diuerſe inuentioni ho ordinate in Villa.

DE I

SECONDO. 47

DE I DISEGNI DELLE CASE DI VILLA DI ALCVNI nobili Venetiani. Cap. XIIII.

LA FABRICA, che ſegue è in Bagnolo luogo due miglia lontano da Lonigo Caſtello del Vicentino, & è de' Magnifici Signori Conti Vittore, Marco, e Daniele fratelli de' Piſani. Dall'vna, e l'altra parte del cortile ui ſono le ſtalle, le cantine, i granari, e ſimili altri luoghi per l'uſo della Villa. Le colonne de i portici ſono di ordine Dorico. La parte di mezo di queſta fabrica è per l'habitatione del Padrone: il pauimento delle prime ſtanze è alto da terra ſette piedi: ſotto ui ſono le cucine, & altri ſimili luoghi per la famiglia. La Sala è in uolto alta quanto larga, e la metà più à queſta altezza giugne ancho il uolto delle loggie: Le ſtanze ſono in ſolaro alte quanto larghe: le maggiori ſono lunghe un quadro e due terzi: le altre un quadro e mezo. Et è da auertirſi che non ſi ha hauuto molta conſideratione nel metter le ſcale minori in luogo, che habbiano lume viuo (come habbiamo ricordato nel primo libro) perche non hauendo eſſe à ſeruire, ſe non à i luoghi di ſotto, & à quelli di ſopra, i quali ſeruono per granari ouer mezati; ſi ha hauuto riſguardo principalmente ad accommodar bene l'ordine di mezo: il quale è per l'habitatione del Padrone, e de' foreſtieri: e le Scale, che à queſt'ordine portano, ſono poſte in luogo attiſsimo, come ſi uede ne i diſegni. E ciò ſarà detto anche per auertenza del prudente lettore per tutte le altre fabriche ſeguenti di un'ordine ſolo: percioche in quelle, che ne hanno due belli, & ornati, ho curato che le Scale ſiano lucide, e poſte in luoghi commodi: e dico due, perche quello, che uà ſotto terra per le cantine, e ſimili uſi, e quello che và nella parte di ſopra, e ſerue per granari, e mezati non chiamo ordine principale, per non darſi all'habitatione de' Gentil'huomini.

LA SEGVENTE

Figure 34: Villa Pisani a Bagnolo di Lonigo (Vicenza)
Source: Andrea Palladio (1570), *I Quattro Libri dell'Architettura,* Italy: Dominico de' Francheschi

Figure 35: From Ghurid Sultanate (left) to Mughal Empire (right) practice.
Source: Left: Dennis Jarvis (2007), *Alai Gate and Qutub Minar*, Wikimedia Commons (website).
Above right: Muhammad Mahdi Karim (2012), *Jama Masjid, Delhi*, Wikimedia Commons (website).
Below right: Riaz Ahmad (2016), *Badshahi Mosque 33 (edited),* Wikimedia Commons (website).

Post-Renaissance (1600s) until 1800s, along with the spread of Andrea Palladio's practices within Europe *(See Figure 36)*, there came something like a 'second crusade', or what today is called 'imperialism'. The forced intrusion and subsequent leadership over other countries has been reflected in the edifices erected by the Western imperialists, which contained Renaissance practice, stood in stark contrast to indigenous structures of the time. *(See Figure 37)* This marks the first time that built environment theories are not introduced by assimilation, but by imposition. After Mannerism, there came Palladian (imitations of Andrea Palladio's take on Ancient Greek and Rome practice), then Barouqe (a highly decorated Renaissance practice), then Rococo (a highly jocular and virile version of Baroque practice), *(See Figure 38)* of which trompe-l'œil is the apex of such[37]. *(See Figure 39)* Also, there is also the relearning of scientific principles of Ancient Greeks, through Muslims, then to Europeans (resulting from translation of Middle East works into Latin) in which the scientific method is identified by the Ancient Greeks, improved by the Muslims, completed by the Europeans in 1600s and standardised in 1800s.

[37] Trompe-l'œil, a perspective drawing on a wall. When you view it in the right position, the drawing merges with the building's form to create a supposedly 'breaking free' from the bounds of reality. The formation of trompe-l'œil, to me, represents what the post-Renaissance artisans had wanted to do all along: to constitute 'inner reality' of the building by elaborate staging and decoration.

Figure 36: Residences applying Palladio's practice to effect.
Source: Above: R. Lessenich (2006), *Stowe House*, Heinz-Joachim Mullenbrock: The English Landscape Garden of the Eighteenth Century and the Role of Literature (website). Below: Bill Bertram (2006), *Queen's House in Greenwich, South East London, United Kingdom*, Wikimedia Commons (website).

	HOUSE	RESIDENCE
MALAY PRACTICE		
FOREIGN TAKE ON MALAY PRACTICE		

Figure 37: Comparison between the original practice and Western colonial practice in Malaysia with regards to places for rest.
Source: Malay practice: House: Unknown (2000s), *Traditional Malay House*, Museum Syndicate (website). Residence: Radzi Sapiee (2007), *Museum Bukit Chandan,* Seni Lama Melayu (Malay Olden Art) (website). Foreign take on Malay practice: House: Kwong Fei (2010), *The Agnes Keith House*, Kwong Fei's Blog (website). Residence: Azizan Aziz (2014), *Resthouse Kuala Lipis*, hazis.wordpress.com (website)

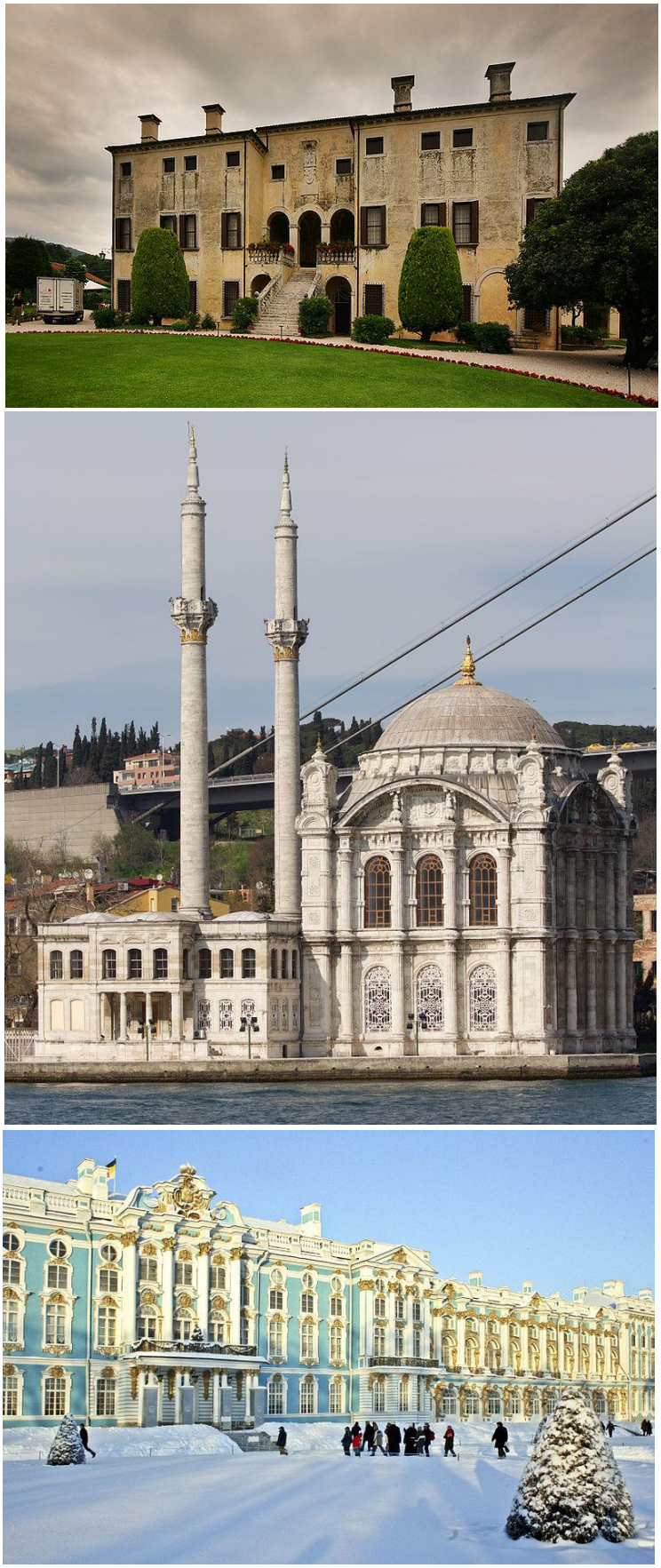


Figure 38: From Palladian (top) to Baroque (middle) to Rococo (bottom).
Source:Top: Stefan Bauer (2007), *Villa Godi Valmarana, Lonedo di Lugo, Veneto, Italy*, Front, Wikimedia Commons (website). Middle: Guillaume Piolle (2011), *Ortakoy Mosque,* WIkimedia Commons (website). Bottom: Morburre (username) (2005), *Pushkin (Russia), Catherine Palace*, Wikimedia Commons (website).

Figure 39: Trompe-l'œil. French for "deceive the eye".
Source: Immanuel Giel (2005), *"End of the world" in the gardens of Schwetzingen*, Wikimedia Commons (website).

As a consequence of the aforementioned improvements in scientific method, there has been an agricultural revolution, with the emergence of contraptions such that to increase productivity of the extraction process, e.g.: wool, vegetable crops. *(See Figure 40)* The architecture of the built environment start bending towards utilitarian aims, but not enough to justify further studies. *(See Figure 41)* Elsewhere, there had been new materials invented, e.g.: reinforced concrete, steel.

Also, there built several institutions that offers academic studies in built environment, e.g.: Ecole des Beaux-Arts. However, being a national (government administered) school, Beaux-Arts treats architecture as an examination: The architecture of built environment must have all things in a checklist provided by supervisors and instructors. This lead to the creation of skillfully made drawings[38]. *(See*

[38] The pressure on students to make very artistic drawings, on par with French academic art, may have a reason behind it. The Scientific Revolution is one of them. Now people of a more mathematical background can calculate the durability of such building's 'chassis' (structure) with exact precision. No longer there need to have 'rule of thumb' for them, as they can know how much a building has to withstand while be able to achieve optimum savings in cost as a result of the building's lighter requirements needing less reinforcement, so the building needs even less material. Consequently, there came a class of professionals who can design a building's structure with scientific rigor, called engineers. Now, there are two jobs that can offer you to design a built environment: the architect and the engineer. Since the structural part has been taken by engineers, the architects (former master builder) naturally took the only route possible to defend its position as one of the primary arts of humanity: use their capacity to enjoy arts. Thus, this is how, then, the architect's job is relegated to aesthetic concerns, the mathematical part emphasised much the same as ever as it did in the antiquity, even today.

Figure 42) However, since they only learned from Greek and Roman practice, and from their instructors, their designs lacked a heightened consciousness (context), and lacked any concern of economics and practicality. This practice has been crticised by Charles-Edouard Jeanneret (1928) as he thought that they teach architects to make badly designed buildings. *(See Figure 43)*

The method of Eclectism, popular especially in the late 19th century, grew out of architect's desire to blend regional vocabularies to architect's discretion. This is encouraged by the fact that the separation which marked the Middle Ages is no more and towns, being united under state governments, can once more be traversed easily throughout Europe*. (See Figure 44)*

2.4.5 Fin de siècle (a period of degeneration and of hope for a new beginning) to World War II (late 19th - 20th century).

The Japanese, which has its strand of Chinese practice, during the Meiji era, the government sought to emulate Western building practice to give an impression that Japan has 'moved on' from isolation. The Japanese are of course, had to compromise, since their practice differs to that of Western practice. This has lead to an accumulation of Western practice 'make-up' into Japanese palatial practice.

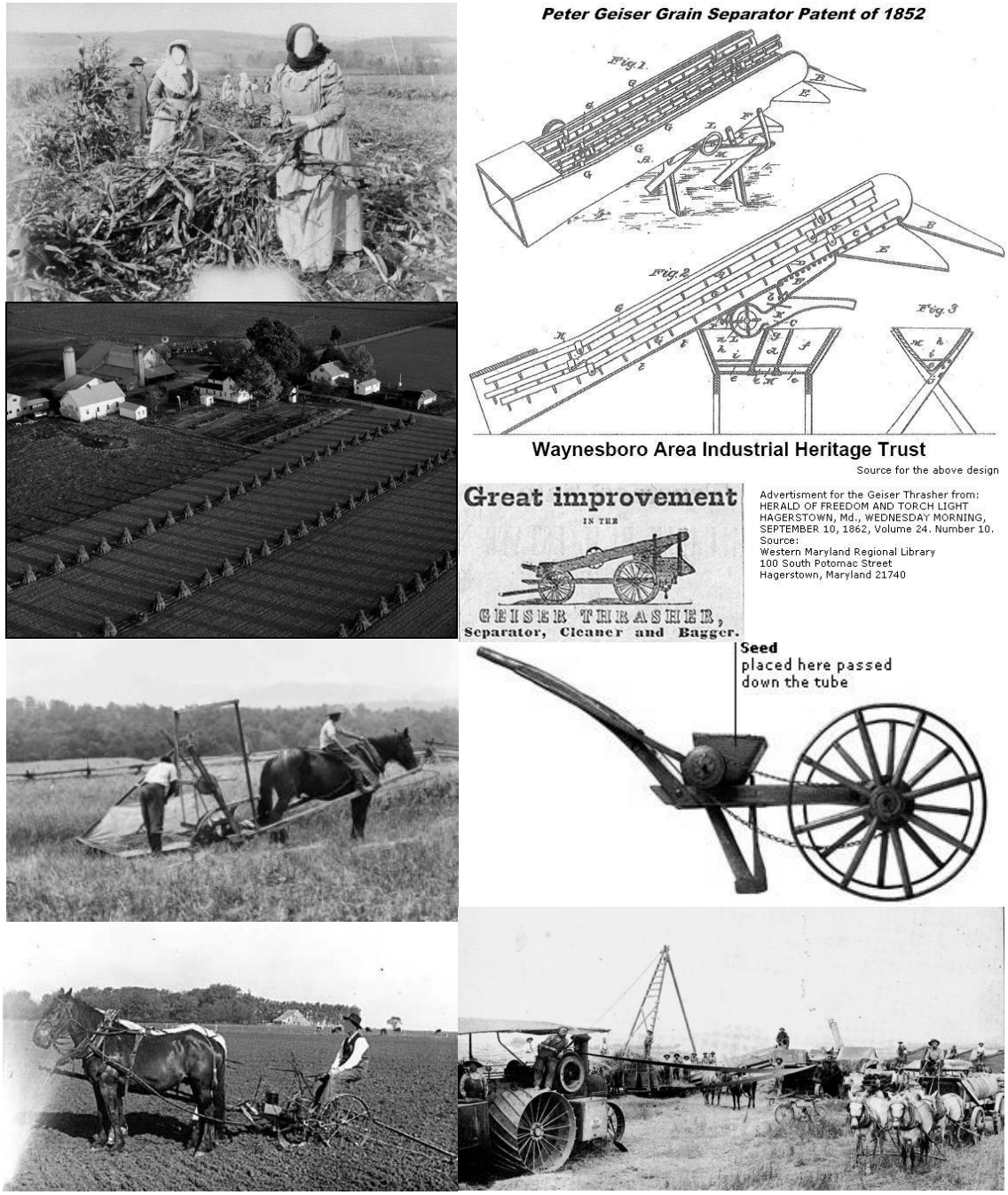


Figure 40: Agriculture in United States in mid-to-late 1800s, with particular emphasis on corn. Of interest is that Amish people in United States have retained their 1800s lifestyle. Jeff Brady (2013) stated that Donald Kraybill stated that disengagement from this world, post-death aims and retention of humanity in behaviour are reasons for them not accepting any further technology beyond Agricultural Revolution.

Source: Herrick Kimball (2011), *Growing & Harvesting Corn by Hand,* Agrarian Nation (website), Unknown (n.d.), *From Prairie to Fruited Plain: The History of Illinois Agriculture: Horse Drawn Machinery*, Illinois State Museum (website), Roger Matile (2016), *When horses powered our lives*, Historyonthefox (website), John A. Miller (2010), *The Land of Milk and Honey; the Agriculture Industry of the Area*, When War Passed This Way (website)

Figure 41: United States' rural built environment in 1800s.

Source: Darren Higgins (2007), *Early 1800s Farm Life in Maryland, but Grander*, The New York Times (website). Kansas Humanities Council (2014), *Humanities Happenings (2/1-2/4),* Kansas Humanities Council (website). Margie Hunter (2011), *Noah "Bud" Ogle Trail*, Smokies Blog (website). Math Teacher (username) (2011), *Abraham Brian Farm House (1800) - Gettysburg National Military Park Historic District - Gettysburg, PA*, Waymarking.com (website).

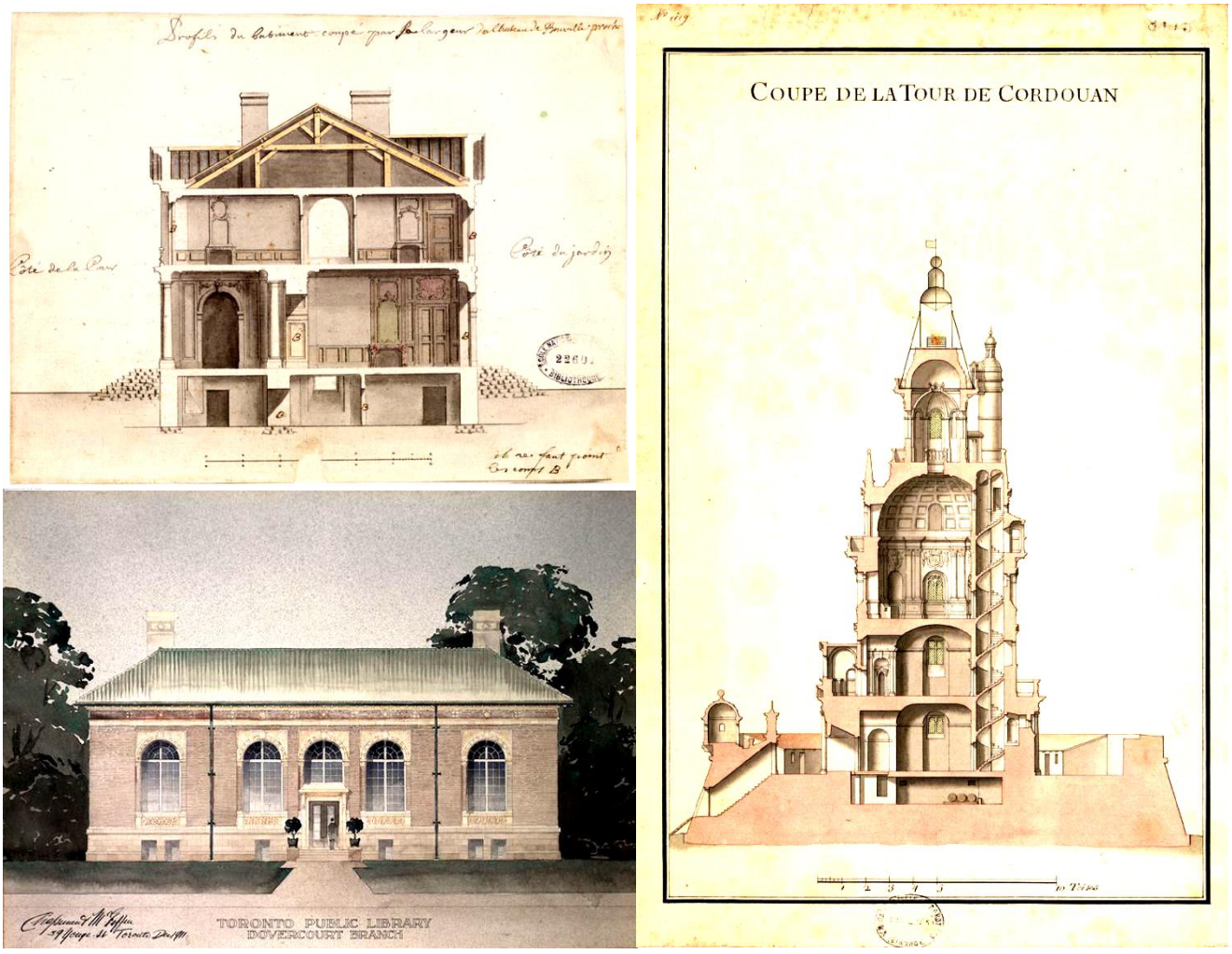


Figure 42: Drawings made using Beaux-Arts practice.

Source: Karissa Rosenfield (2014), *The Parisian Hôtel Particulier in Drawings*, ArchDaily (website). Bill V. (2013), *Bloor Gladstone Branch turns 100 - help us celebrate!*, Toronto Public Library (website). Unknown (n.d.), *Lighting the way with iron and coal*, Cordouan (website).

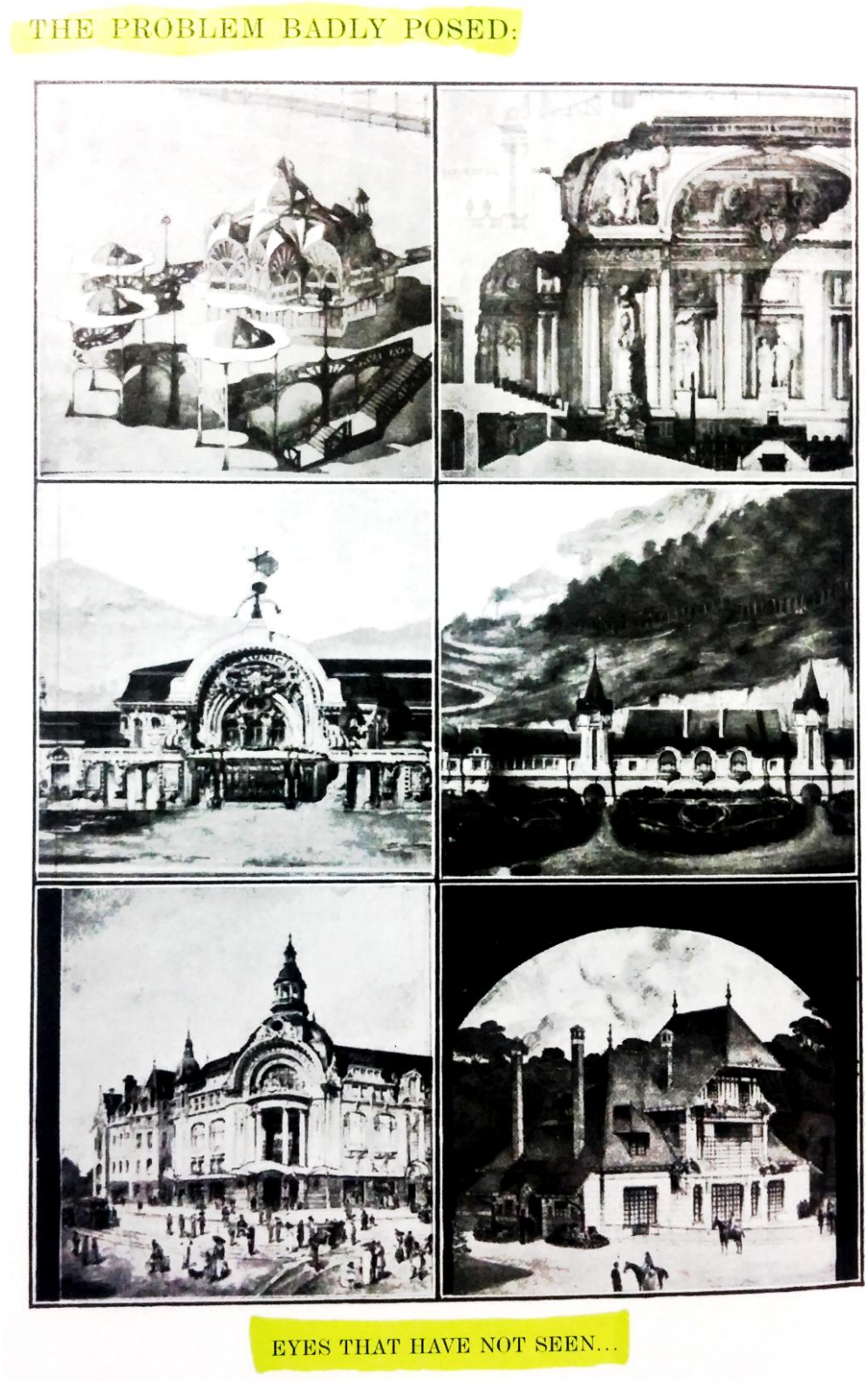


Figure 43: “Wanting to make a beautiful house, that was to pose the problem badly, and these houses cast man out, are devised for furniture storage. To invent a machine for rest without paying slightest attention to what’s alien to pure mechanics, in other words, to look for a way to house people with as low the inconvenience (cost, transport) as possible and as considerate (ergonomics, workmanship) as possible, that was to pose the problem well: in less than ten years the whole world could own a house.”

Source: Charles-Edouard Jeanneret (1924), *Toward An Architecture*, Paris: G. Cres.

Figure 44: Some built environments done using eclectic practice by Illarion Ivanov-Schitz (1865 –1937). This specialised practice results from having exposure to a lot of practices. Eclectism is employed by using the best characteristics of each practice that the architect knows and favours onto each and every aspect of the built environment concerned, depending on the circumstances. Shown here are blends of Restrained Classicism, Art Noveau, Neoclassical Revival. Graham Brenton McKay (2015) stated: "From about this time, Ivanov-Schitz (…) has been said to use a modernised form of classical tectonics. Others simply called it "A Greek sort of Wagner"."

Source: Graham Brenton McKay (2015), *Architecture Misfit #19: Illarion Ivanov-Schitz*, Misfit's Architecture (website).

Wholly Western practices are also evident in Japan, but this comes from architects who actually came from Western civilisation. *(See Figure 45)*

The ethos of Philosophical Industrialism comes from Arts and Crafts movement: a criticism of Rococo and Baroque practices: lack of subtlety, or uses technology and materials in a wasteful way, or in the words of Owen Jones (1851), "…novelty without beauty, or beauty without intelligence.". Added to another re-examination of ancient practices, new materials and techniques, French mindset, and interest in Japanese arts: Art Noveau. *(See Figure 46)* Art Noveau became popular and spread across Europe to Spain and Vienna. Antoni Gaudí of Spain is an exemplary. *(See Figure 47)* In Germany, with the simplification of Ancient Rome and Greek practice and the import of Art Noveau there came Restrained Classicism and Jugendstil respectively. *(See Figure 48)* Where Art Noveau stopped, the ethos is then preserved by Viennese Seccesion. *(See Figure 49)* Otto Wagner has done several excellent Jugendstil buildings. Charles Rennie Mackintosh (Art Noveau, Japanese arts) and Louis Sullivan (Arts and Crafts, Vitruvius) concluded that decoration comes after practicality. Louis Sullivian published *The Tall Office Building Artistically Considered.*[39]

[39] Louis Sullivan (1896): It is the pervading law of all things organic and inorganic, of all things physical and metaphysical, of all things human, and all things super-human, of all true

In Britain and United States, the owners of plantations become wealthy as the result of Agricultural Revolution. The peasants, who used to occupy space designated as 'common space' for cow grazing and planting crops for subsistence, has to move out following the fencing of land. *(See Figure 50)* Most peasants went to towns and not finding work, causing the labour to become cheap there. *(See Figure 51)* The owners then build factories there to cope up with the demand of their good sales. *(See Figure 52)* This caused the towns to become risky places to live, as owners of those industries build polluting plants too close to homes and without regard for human needs. City officials began imposing rules for minimum habitation standards, starting with John H. Criscom in 1842 in United States and reciprocated in Europe with *Town Planning Act*[40] in Britain in 1909. Thus the ethos of Practical Industrialism was born. Karel Teige (1932) investigates the condition of workers' housing at that time and proposes how houses should be designed for them in his book *The Minimum Dwelling*. *(See Figure 53)*

manifestations of the head, of the heart, of the soul, that the life is recognizable in its expression, that form ever follows function. *This is the law*.'

[40] Campaign to Protect Rural England (n.d.): Town Planning Act (1909) forbids the building of back-to-back housing, symbolic of the poverty of the industrial cities, and allowed local authorities to prepare (authorise?) schemes of town planning.

Figure 45: Difference between actual Western practice by a Westerner (Rokumeikan by Josiah Conder) and pseudo-Western practice by the Japanese (Kaichi Primary School by Tateishi Kiyoshige)

Source: Above: Unknown (1883), *Rokumai-kan (built 1883, demolished 1940) at its completion*, Wikimedia Commons (website). Below: Kakidai (username) (2009), *Former Kaichi School in Matsumoto, Japan,* Wikimedia Commons (website).

Figure 46: Art Noveau in the 1890s. Shown above is Tassel House in Brussels by Victor Horta (1894) and Castel Béranger by Hector Guimard (1898). Of interest is that Art Noveau begins in British Arts and Crafts movement, re-examination of ancient practices, new materials and techniques, and interest in Japanese arts.

Source: Above: Henry Townsend (2002), *Stairway of Tassel House, Brussels*, Wikimedia Commons (website). Below: Groume (username) (2013), *Porte d'entrée du Castel Béranger*, Wikimedia Commons

Figure 47: Two very different buildings by Antoni Gaudí, along with them two different characters; the Sagrada Família, above, and Sagrada Família Schools, below. One was completed in 1909, another is in construction from 1882 to approx. 2028.

Source: Above: Bernard Gagnon (2009), *The Sagrada Familia viewed from Casa Milà, Barcelona, Spain,* Wikimedia Commons (website). Below: Unknown (1909), *School at Sagrada Família in Barcelona,* Taschen, Köln.

Figure 48: Ancient Greek practice revival (Former German Embassy in St. Petersburg, Russia) and Art Noveau (Hofatelier Elvira, Munich) in German.

Source: Above: Dmitriy Guryanov (2011), *German Embassy in Petersburg*, Wikimedia Commons (website). Below: Unknown (1900s), *Hofatelier Elvira*, Wikimedia Commons (website).

gure 49

Figure 49: Viennese Secession had no set standards. Its main slogan is ‘leaving past as past, and using what we have now, where will we be led to?’. Above is Secession Building (1897) by Joseph Maria Olbrich, below is the interior of Austrian Postal Savings Bank (1906) by Otto Wagner .

Source: Above: Gryffindor (username) (2006), *Secession Vienna June 2006 017*, Wikimedia Commons (website). Below: Genius (username) (2004), *Wien PSK Kassensaal,* Wikimedia Commons (website).

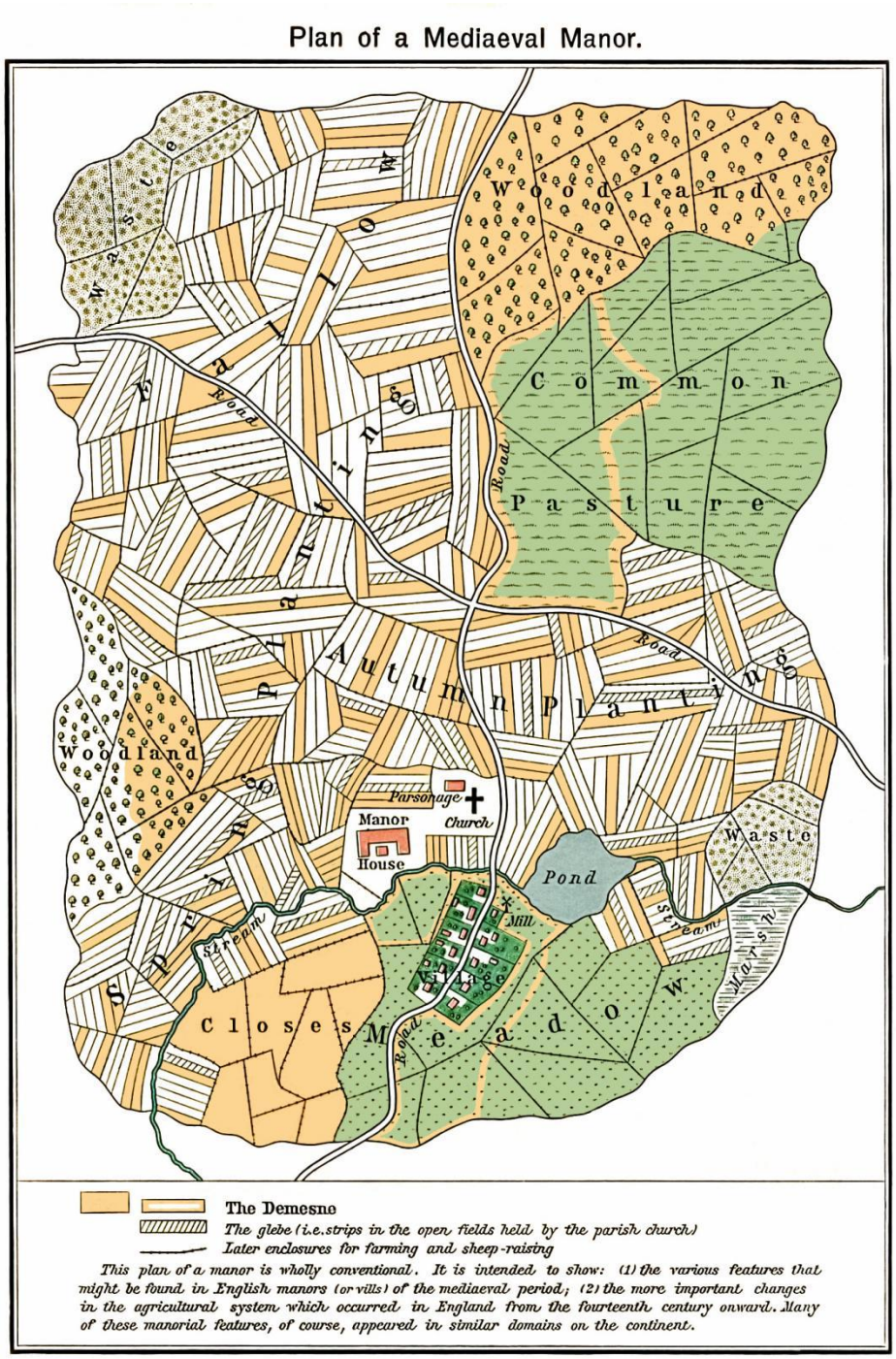

Plan of a Mediaeval Manor.
Waste
Wall
Woodland
Common
Pasture
Road
Parsonage
Church
Manor
House
Pond
Mill
Stream
Open Fields
Autumn Planting
Spring Planting
Closes
Meadow
The Demesne
The glebe (i.e. strips in the open fields held by the parish church)
Later enclosures for farming and sheep-raising
This plan of a manor is wholly conventional. It is intended to show: (1) the various features that might be found in English manors (or vills) of the mediaeval period; (2) the more important changes in the agricultural system which occurred in England from the fourteenth century onward. Many of these manorial features, of course, appeared in similar domains on the continent.

Figure 50: By the 20th century, the area called ‘Common Pasture’ in the diagram will be fenced off, leaving peasants no option but to go to cities for subsistence. English Poor Laws was soon enacted to help them.

Source: William R. Shepherd (1923), *Historical Atlas*, New York, Henry Holt and Company.

gure 51

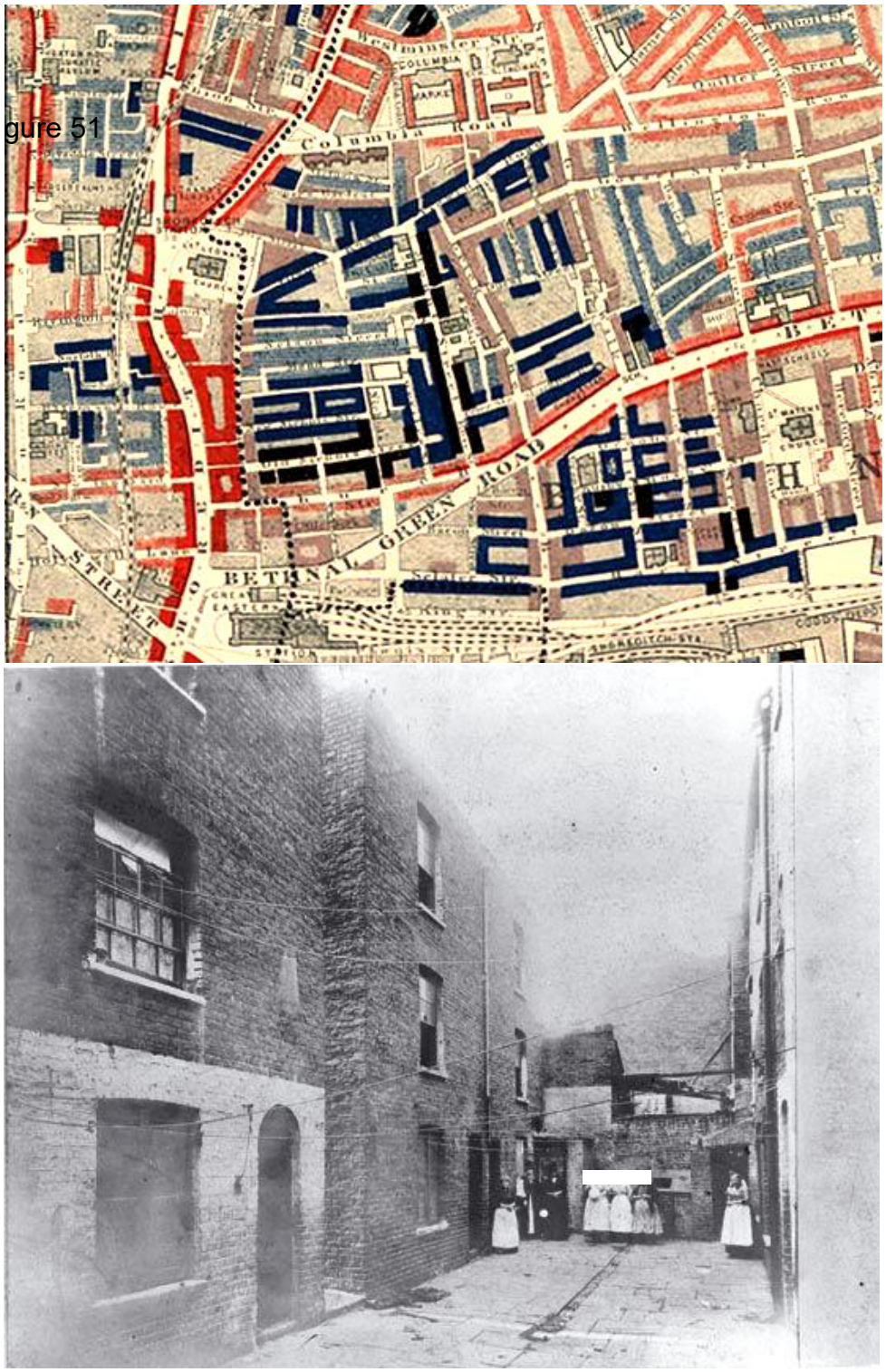


Figure 51: There were former peasants in London, some still poor, languishing. Above is the poverty map of Old Nichol, the criminals on black, the inadequate on dark blue, 'just barely able' in light blue, middle class in red. Shown below is Boundary Street, part of Old Nichol slum in London, in 1880s. Slum clearance began in 1893.

Source: Above: Charles Booth (1889), *Labour and Life of the People, Volume 1: East London*, London: Macmillan. Below: Unknown (1880s), *Boundary Street 1890*, City Of London Metropolitan Archives.

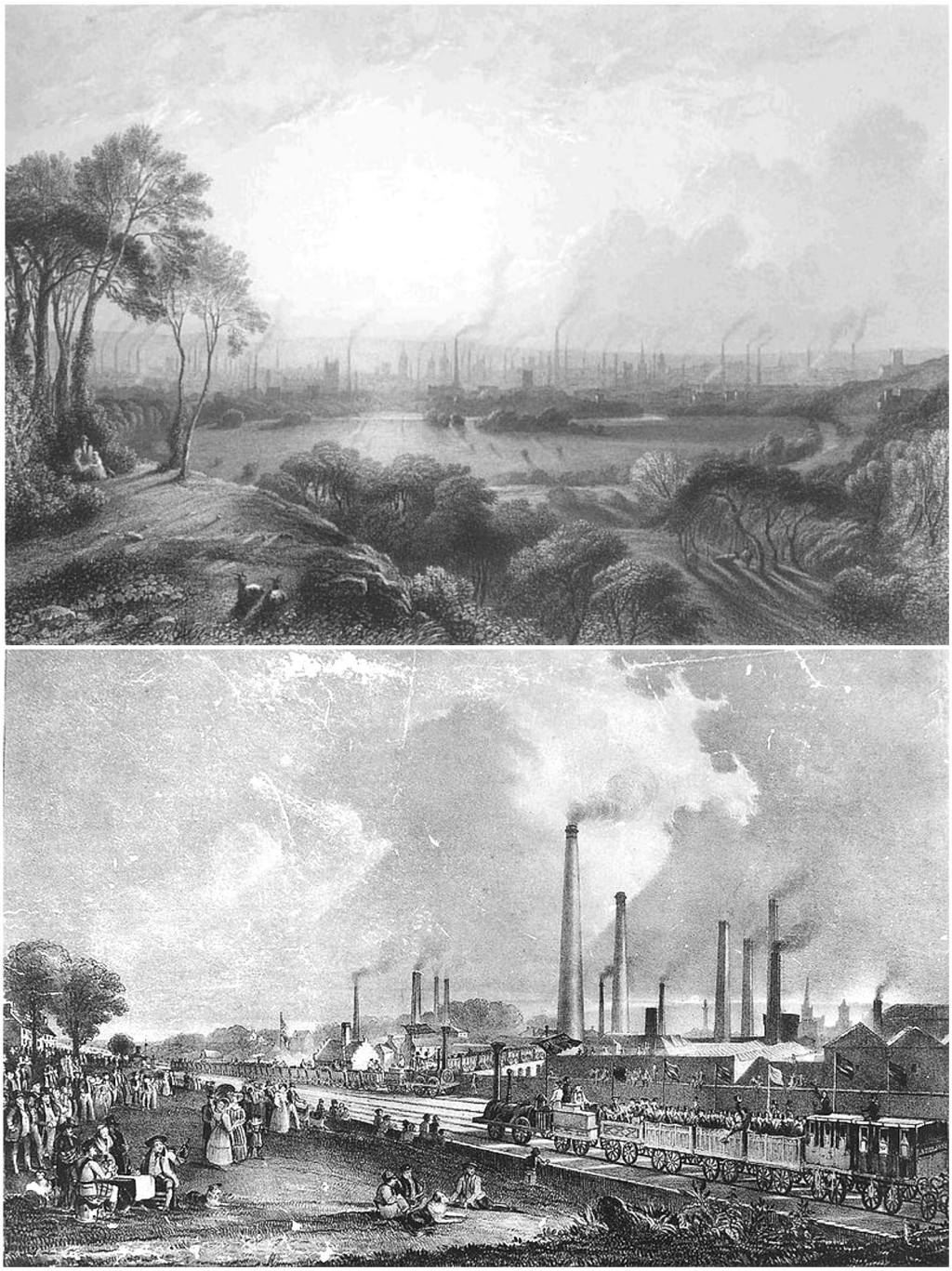


Figure 52: What happens if you have a number who are poor and need to do something to survive, a number who wants workers because they had too much customers to deal with in such a short time, a number who are clever and insightful and wanted to do things better, come together? They build factories within the walking distance of the impoverished community, the clever make contraptions to simplify process for the uninitiated, and the only good choice the poor has is to work there.

Source: Above: Edward Goodall (1800s), *Manchester, from Kersal Moor* (after W. Wylde's painting). D. O. Hill (1831), *St. Rollox Chemical Works at the opening of the Garnkirk and Glasgow railway in 1831.*

extensive writings of Dr. John H. Griscom, who served as city inspector in 1842 and became one of New York City's first crusaders for housing reform, represent the first comprehensive treatment of the subject.[31] He appears to have been greatly influenced by the work in England of Sir Edwin Chadwick.[32] Writing in 1842 about the difficulties of enforcing housing standards for the poor, Griscom identified the landlords as having the resources and responsibility to improve housing conditions. Because he could find no sound economic reasons within the capitalist system for landlords to pursue such improvements beyond the minimums set by law, he was forced to call on their goodwill. His arguments implied that for all concerned, good intentions would be more profitable than exploitation. The landlords would be duly compensated with "the increased happiness, health, morals

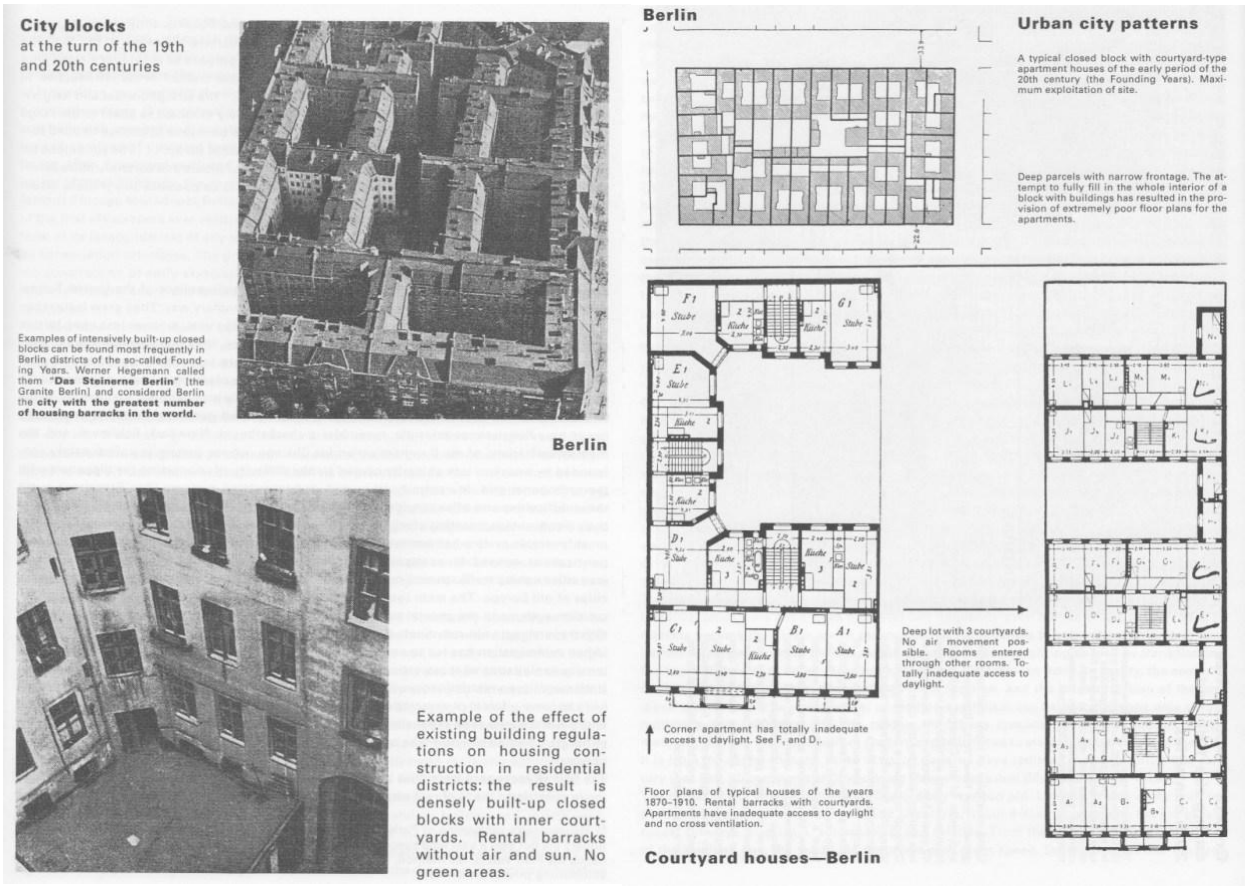

City blocks
at the turn of the 19th and 20th centuries
Examples of intensively built-up closed blocks can be found most frequently in Berlin districts of the so-called Founding Years. Werner Hegemann called them "Das Steinerne Berlin" [the Granite Berlin] and considered Berlin the city with the greatest number of housing barracks in the world.
Berlin
Example of the effect of existing building regulations on housing construction in residential districts: the result is densely built-up closed blocks with inner courtyards. Rental barracks without air and sun. No green areas.
Berlin
Urban city patterns
A typical closed block with courtyard-type apartment houses of the early period of the 20th century (the Founding Years). Maximum exploitation of site.
Deep parcels with narrow frontage. The attempt to fully fill in the whole interior of a block with buildings has resulted in the provision of extremely poor floor plans for the apartments.
Deep lot with 3 courtyards. No air movement possible. Rooms entered through other rooms. Totally inadequate access to daylight.
Corner apartment has totally inadequate access to daylight. See F1 and D1.
Floor plans of typical houses of the years 1870–1910. Rental barracks with courtyards. Apartments have inadequate access to daylight and no cross ventilation.
Courtyard houses—Berlin

Figure 53: An excerpt from Richard Plunz (1990), *A History of Housing in New York City* and Karel Teige (1932), *The Minimum Dwelling*. Here shows where housing reform began and Karel Teige's analysis of the Berlin's condition of peasant's city houses in 1890s to 1990s.

Source: Above: Richard Plunz (1990), *A History of Housing in New York City*, Columbia University Press. Below: Karel Teige (1932), *The Minimum Dwelling*, Fr. Borovy, Prague.

From the requirements of these authorities, architects scramble to create tenements that achieved all conditions for proper, inexpensive, and secure living conditions. *(See Figure 54)* Thus comes the genesis of social housing. Edward T. Potter is an exemplary one. *(See Figure 55)* In manufacturing industry, workshops that used to survive during Agricultural Revolution, which its capacity was too small by this time, closed one by one. The Luddite Revolution happens with factories sabotaged *(See Figure 56).* The concern is that lower prices of goods, helped using more machinery and higher production, has caused the craftsman's rate to drop below sustainable amounts. In order to mitigate this, they went with the theory[40] that by destroying machinery, the production could be lowered, and the rate could be increased back to sustainable levels for these workshops. As living in the towns is now risky, the people who had better finances and are better educated want to move out to suburbs or countryside. The genesis of didactorial town planning and suburban configuration started as *Garden Cities* by Ebenezer Howard (1898). *(See Figure 57)* Also, there are industrialists that are concerned with the worker's conditions, and the architecture reflects that in their housing projects for company workers. *(See Figure*

[40] If I am in their place, I will tell them to either a) discontinue workshop and try to apply as one of the workers in those factories, and do craftsmanship as a hobby, or b) observe in what area of expertise that these factories did not go and proceed to specialise in that area. Else, there is no way round that if they want to stay in the textile industry.

58) The rich continue to develop their houses as before, thus came the division of towns: worker's towns and high-class towns.

In worker's towns, the architecture of built environment is the Practical strand of Industrialism. There really is no time for creativity and every time is work and busyness. As such, the buildings are utilitarian and simple. *(See Figure 51, 52, 53, 54, 55, 58)*

In high-class towns, the Philosophical strand of Industrialism reigns. This is the ethos of Industrialism elevated to the ideal of all arts such that it becomes a full-time job and leisure (culture). This happened because of the change in reading material, which contains much applied science from content down to the reading materials themselves. *(See the book titles in upcoming pages)* These reading materials are sought because the educated mind now sees and craves to understand the inner reality of things, not the outer reality. However, Charles-Edouard Jeanneret writing in *Toward An Architecture* (1924) said that these wishes are not satisfied because the 'styles' of past focuses on outer beauty and several peripherals needed in the present are not available, so the beginnings of such are like in Figure 42, 43, 44, 45, 46, 47, 48, 49, 57.

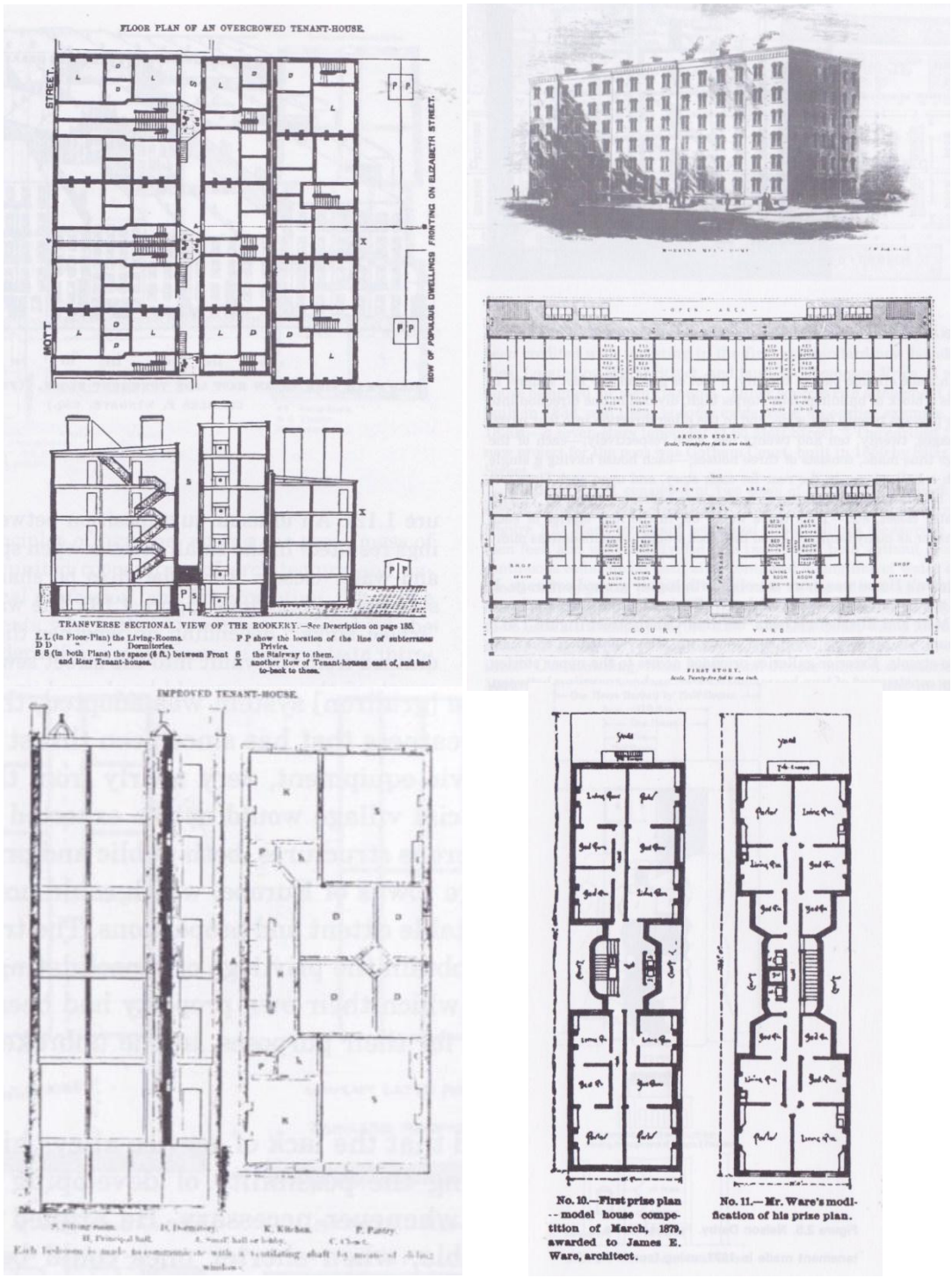
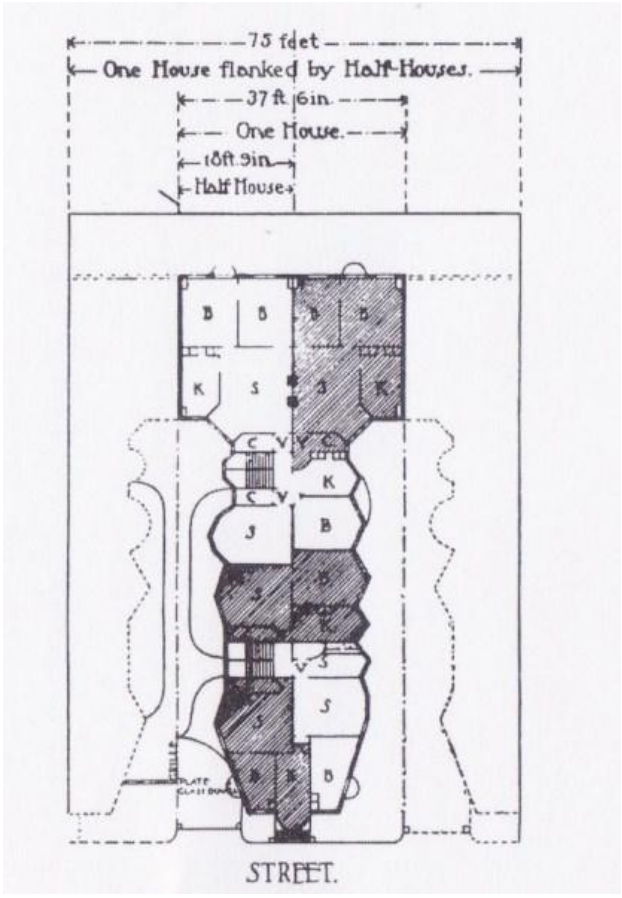

FLOOR PLAN OF AN OVERCROWED TENANT-HOUSE.
STREET.
MOTT
ROW OF POPULOUS DWELLINGS FRONTING ON ELIZABETH STREET.
TRANSVERSE SECTIONAL VIEW OF THE ROOKERY.—See Description on page 185.
L L (In Floor-Plan) the Living-Rooms.
D D " Dormitories.
B B (In both Plans) the space (6 ft.) between Front and Rear Tenant-houses.
P P show the location of the line of subterranean Privies.
S the Stairway to them.
X another Row of Tenant-houses east of, and back to-back to these.
IMPROVED TENANT-HOUSE.
No. 10.—First prize plan -- model house competition of March, 1879, awarded to James E. Ware, architect.
No. 11.—Mr. Ware's modification of his prize plan.

Figure 54: Gradual improvements to New York tenement designs, from 1865 to 1879.

Source: Richard Plunz (1990), *A History of Housing in New York City*, Columbia University Press.



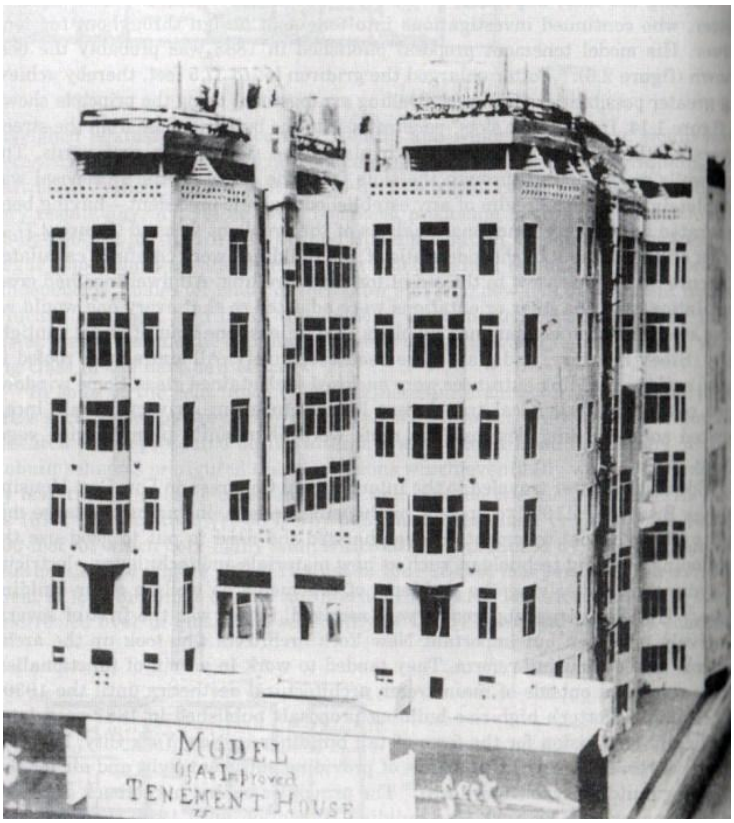


Figure 55: Graham Brenton McKay (2016) states:

- His most radical suggestion was to increase the lot to 37.5′ from the 25′ that was the norm. There are now six apartments rather than Ware's four on a 25′ lot.
- Integrating the lightwell and access route means no internal area needed to be constructed to access stairwells.
- All rooms have windows.
- Cross ventilation.
- Walls angle windows towards the street increasing views.
- Stairwells are naturally lit and ventilated.
- The building was made of masonry, steel, and glass.
- The stairs were roofed in glass.
- Some windows had louvres for privacy and others had sun shading devices.
- Roofs had gardens.
- Each apartment would receive one hour of direct sunlight daily. This would be determined by the width of the alleyways and must be what led Potter to propose increasing the lot width. It would also be why the building tapers towards the front.

Source: Richard Plunz (1990), *A History of Housing in New York City*, Columbia University Press.

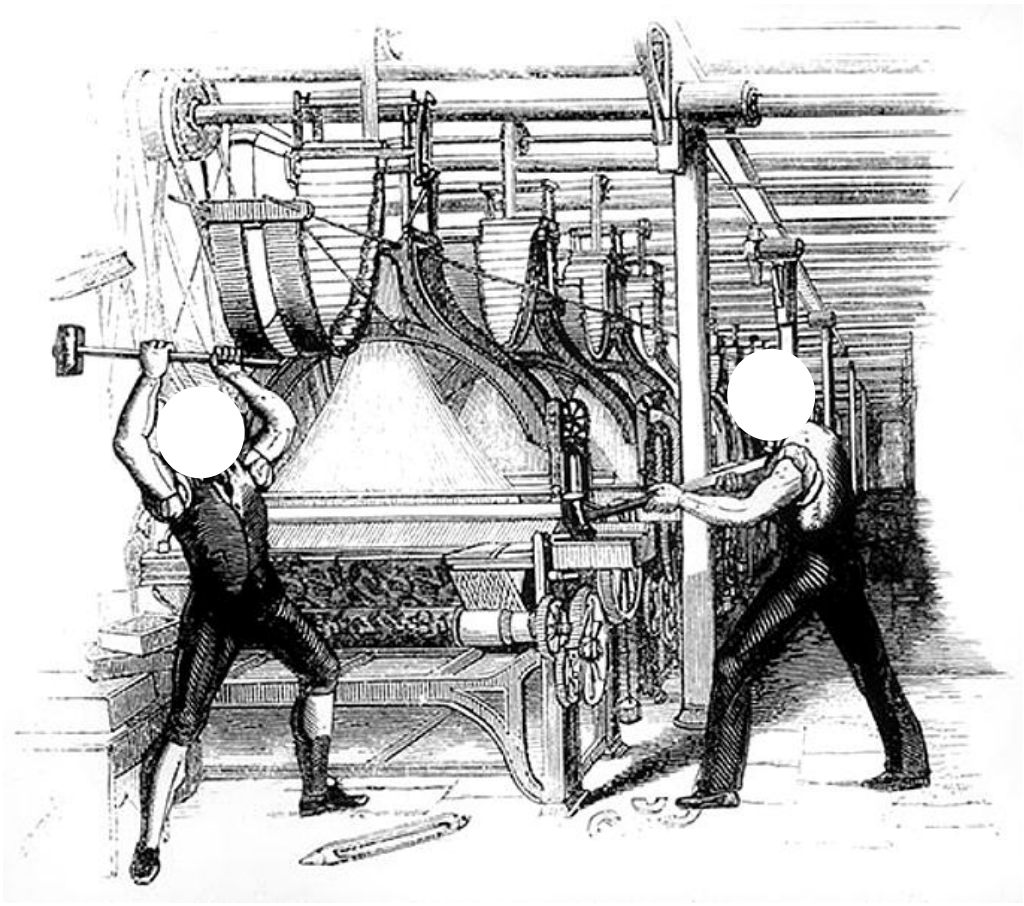


Figure 56: Christopher Sunde (2008): Frame-breakers, or Luddites, smashing a loom. Machine-breaking was criminalized by the Parliament of the United Kingdom as early as 1721, the penalty being penal transportation, but as a result of continued opposition to mechanisation the Frame-Breaking Act 1812 made the death penalty available.

Unknown (2004): Britain was rapidly becoming two nations, rich and poor, because of the Industrial Revolution. During the long war against revolutionary France and Napoleon, Pitt's government had imposed tough laws against protest and rebellion. Lord Liverpool kept these laws after the wars had ended, and a peace-time army of 25,000 soldiers was used to keep the people in check. This was after all, the age before police.

In 1811 a group of workers formed a secret organisation led by a mysterious 'King' Ned Ludd of Sherwood Forest. Whether a man named Ludd existed or not is unknown. Their targets were the wide-frame stocking machines which were causing falling wages and unemployment in the Midlands. Letters were sent to machine owners, demanding the removal of the things.

Source: Unknown (1812), *The Luddites: 1811-1816*, Learn History: Crime, Punishment and Protest through Time, c.1450-2004 (website, changed beyond recognition).

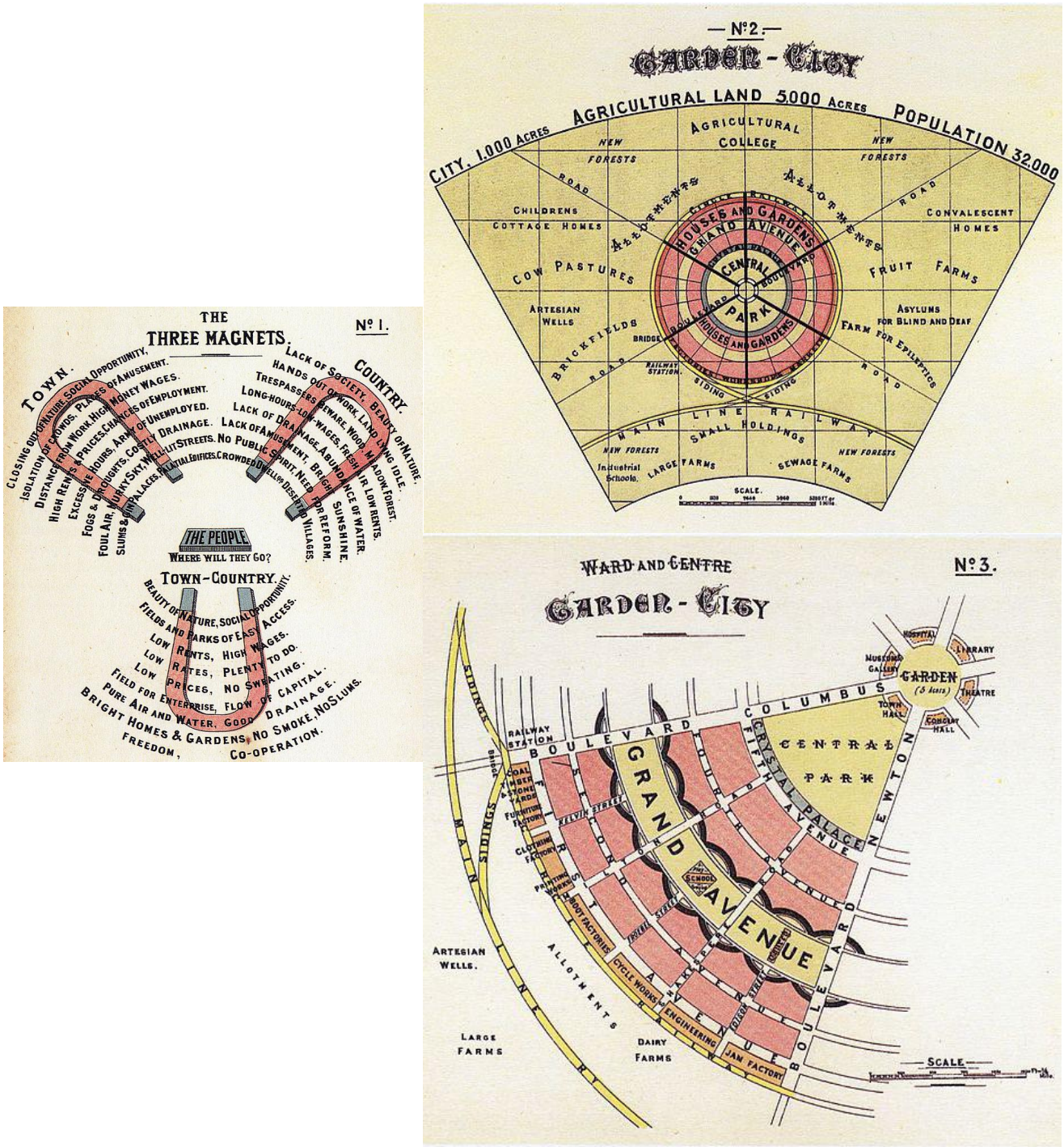


Figure 57: Garden City proposal by Ebenezer Howard (1898), showing the theory (right) and its rationale (left). Wikipedia (n.d.): Howard organised the Garden City Association in 1899. Two garden cities were built using Howard's ideas: Letchworth Garden City and Welwyn Garden City, both in the County of Hertfordshire, England, United Kingdom.

Source: Ebenezer Howard (1898), To-morrow: A Peaceful Path to Real Reform, Swan Sonnenschein, Paternoster Square (1902).

Figure 58: Le Familistère (Social Palace) 1856-1859 by Jean-Baptiste André Godin. Wikipedia (n.d.): Influenced by Charles Fourier, his intention was to improve housing for workers, but also "production, trade, supply, education, and recreation", all the facets of life of a modern worker.

Source: Above: Unknown (1889), L'aile droite vue du premier étage du pavillon Cambrai, "Le Familistère de Guise: une utopie realisée (website). Below: LonganimE (username) (2005), Familistère Central Guise Intérieur, Wikimedia Commons (website)

The architects of the time tackles these two divisions at the same time. We have discussed those that tackled Practical Industrialism. For Philosophical Industrialism, much propagation of its ethos comes in the form of writings by architects, built projects by clients of educated minds e.g.: Rietveld Schröder House by Gerrit Rietveld for owner Truus Schröder-Schräder, Ozenfant House and Studio, Maison La Roche in Auteuil by Charles-Edouard Jeanneret.

The Western civilisation has by now produced literature which contains the first serious investigative and didactive reports on built environment, e.g.: *City Planning According to Artistic Principles* by Camillo Sitte (1889), *Feng Shui or, The Rudiments of Natural Science in China* by Ernst J. Eitel (1873).

Then there came Worker's Revolution in Russia, in which the revolution organised by educated people in sympathy with worker's plight, called Bolsheviks, inspired by the ethos of Marxism[41], overthrows

[41] Karl Marx (1867) has studied the mechanism of mercantile system of wealth distribution (the owner of excess goods sells the goods to another person who has the goods the owner wants) in *Capital, Volume I: The Process of Production of Capital* and found that this type of system causes the society's structure to always favour the ones who has the most excess goods (e.g. the ones who has the land) and the ones who have no excess goods to even eke out a living will be perpetually under the service of the ones who had excess goods, including their children.

An example of this phenomenon is the serfdom which happened during late Ancient Rome. This is caused by many urban people who are dependent on food by merchants and did not have a farm were forced to go to the countryside to liaise with the owner of farms to take them as workers when merchants did not feel safe anymore to tread Ancient Rome's roads due to

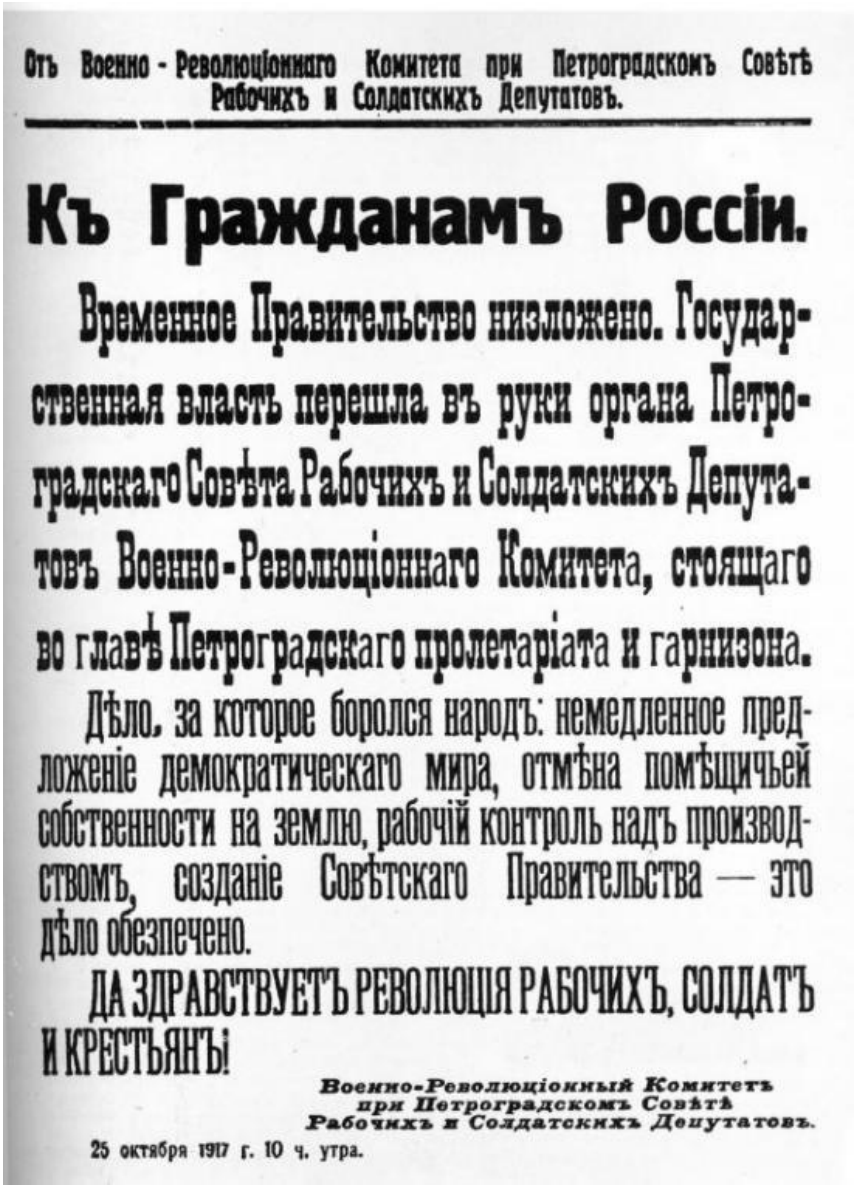
the political and administration instability caused by multiple claims to power. The owners, wishing to spare the effort of finding another worker, now he or she cannot even go anywhere, kept them secure in their farms, even after their marriage. By keeping them in their farms, they have in fact now bear the burden of managing and securing them, instead of the government which is supposed to, but unable to. You can say that each farm is a kingdom by that time, its workers are subjects of the farmer's kingdom. Thus the creation of serfdom and Dark Ages.

To balance back the society's structure to favour the disadvantaged, I imagine that what Karl Marx want to propose, is for, firstly, an organisation be created by the ones who sympathize the workers. Secondly, the organisation must give support to disadvantaged workers propotional to its available capacity until the time comes where there is wide dissastifaction amongst the workers' part towards farmers, in which case the organisation must participate in politics and publicise the aforementioned dissastifaction by publicity or in case that election is not possible (such as monarchy), initiating complaints to person responsible, rejecting which, a revolution Is to be staged. Thirdly, after revolution, the government in charge must enact policies that puts farmers/workshop owners in charge from discriminating their workers, and to require farmers/workshop owners to educate workers on agriculture or other trades which interests the worker, the availability of which is subject to quota set by the government. Fourth, the government, by the time these workers are educated, then redistribute government's available open land/empty shop to them, effectively making them government servants. Fifth, the educated workers, who had graduated from private-serfdom-era farmers/workshops, enter into their plot of land/shop determined and owned by the government and keep an oversight of them as they set to work on what they got to the orders of government. Sixth, the government continues to keep track of their situation and included them also as educators for the second generation of government servants. Eventually, the result will be that every adult person (or family), including the original farmers/workshop owners, has their own specially designated land/shop, and is required to give the crop/product to the government for redistribution to another town whom its populace needs the goods, and, in giving their crop/product for redistribution, the products from other towns are also at the same time redistributed to each and every nearby towns in the form of chronically essential services that will be provided at your disposal within the limits of your own amount of harvest/production. Of course, if, for example, your harvest/production is exceptional for this month, the resulting surplus will be inserted into the government's vault in case of emergency, then separate to that, a certain number of 'credit' in proportion to your surplus are given to you for use in case of emergency. For instance, say, that you had an accident, and you have to go see a doctor, the doctor will tell you that in order to 'fix' you, you will have to shell out an amount of harvest/product that is impossible to obtain within the capacity of even the most effective agriculture/workshop practices. However, you are able to do so simply because you have 'credit' that you have been keeping for some years due to you being very frugal and shrewd with government's services.

the Tsar of Russia. *(See Figure 59)* The opportunities for the construction of a new society is laid before their eyes. After the revolution, there established Marxism parties on other nations. Frank Lloyd Wright came to Europe in 1909 to 1910 to promote his publication Wasmuth Portfolio. In Wikipedia (2017): “Wright's early influence in northern Europe is unquestionable: Le Corbusier (Charles-Edouard Jeanneret) is known to have had and shared a copy, Czech architect Antonin Raymond and Austrian architects Rudolf Schindler and Richard Neutra all re-located to the United States in hopes of working for Wright, and one look at Willem Marinus Dudok's 1924 Hilversum Town Hall betrays its origins. At the time of the portfolio's publication, three major influential architects of the twentieth century (Le Corbusier (Charles-Edouard Jeanneret), Ludwig Mies van der Rohe and Walter Gropius)

However, Karl Marx, in laying down the (admittedly very good) theory, had forgotten that the proposal will require all humans to be altruistic and loyal. Also, there had to be a very efficient and effective bureaucratic practice. In reality, humans are of uneven quality in terms of ethics, and are relaxed in a way that made even the simplest of tasks a chore. This ethical dimension is severely overlooked among people who support Marxism that, you can say, equals its obscurity to a blind spot, who, when the theory is put to effect, eventually regretted that they had essentially supported an untested theory of undertaking fair governance and justice. Furthermore, the eventual leaders who eventually take over the position of the ‘head of state’ are of the kind who are powerful warlords and military strategists, but lack a sense of humility and humanity. This type of character, when combined, contributed to sloppy and rushed policies and gross actions against populace (even to the targeted populace they want to pay attention to, the disadvantaged workers), further deepening unpopularity of Marxism among the public.

were all working essentially as apprentices in the atelier of Peter Behrens in Berlin." Also, "Wright would never admit that the exchange worked both ways, always claiming that he took nothing from his year in Europe, but the work of Wright scholar Anthony Alofsin suggests that Wright was heavily influenced by the work of the Vienna Secession. In turn, the Dutch De Stijl movement follows Wright's designs by just a few years. De Stijl's major contributors credit Wright with some influence." Then came World War I, which lasted from 1914 to 1918, which results in Germany's economic hyperinflation due to not be able to pay war debts. Bauhaus was established in 1919. *(See Figure 60)*



От Военно-Революціоннаго Комитета при Петроградскомъ Совѣтѣ Рабочихъ и Солдатскихъ Депутатовъ.

Къ Гражданамъ Россіи.

Временное Правительство низложено. Государственная власть перешла въ руки органа Петроградскаго Совѣта Рабочихъ и Солдатскихъ Депутатовъ Военно-Революціоннаго Комитета, стоящаго во главѣ Петроградскаго пролетаріата и гарнизона.

Дѣло, за которое боролся народъ: немедленное предложеніе демократическаго мира, отмѣна помѣщичьей собственности на землю, рабочій контроль надъ производствомъ, созданіе Совѣтскаго Правительства — это дѣло обезпечено.

ДА ЗДРАВСТВУЕТЪ РЕВОЛЮЦІЯ РАБОЧИХЪ, СОЛДАТЪ И КРЕСТЬЯНЪ!

Военно-Революціонный Комитетъ при Петроградскомъ Совѣтѣ Рабочихъ и Солдатскихъ Депутатовъ.

25 октября 1917 г. 10 ч. утра.

Figure 59: English: To Citizens of Russia,

The Provisional Government is deposed. The state power is transferred into the hands of the Military Revolutionary Committee, an organ of the Petrograd Soviet of Workers' and Soldiers' Deputies, which heads the Petrograd proletariat and garrison.

The cause for which the people has been struggling — immediate call for democratic peace, liquidation of ownership of land by landed nobility, workers' control over the industry, creation for the Soviet government — is ensured.

Long live the revolution of workers, soldiers and peasants!

Source: Vladmir Lenin (1917), Milrevkom, Wikimedia Commons (website).

Gutschein über
Fünfzig Billionen
M·a·r·k
Reihe A
DIESER GUTSCHEIN WIRD VON DEN STÄDTISCHEN KASSEN IN ESCHWEILER u. STOLBERG SOWIE VON DEN BANKEN DES ESCHWEILER-STOLBERGER INDUSTRIEG. IN ZAHLUNG GENOMMEN. ER VERLIERT SEINE GÜLTIGKEIT VIER WOCHEN NACH AUFRUF DURCH D. ÖFFENTL. BLÄTTER
ESCHWEILER u. STOLBERG, DEN 11. NOV. 1923
DIE BÜRGERMEISTER:
50
i.V.
Eilsen
Dobbelmann
Umlauffähig im ganzen Regierungsbezirk Aachen
Gültig bis zum 1. April 1924

Figure 60: Relationship between Bauhaus Dessau (1925) by Walter Gropius with hyperinflation in 1923.

Source: Top: Unknown (1923), *In der Geldauflieferungsstelle der Reichsbank in Berlin*, German Federal Archives. Middle: EvaK (username) (2006), *50 Billionen Mark*, Wikimedia Commons (website). Bottom: M_H.DE (2013), *Dessau, Bauhausgebäude*, Wikimedia Commons (website).

After World War I ended, cities and villages are damaged, but most damaged cities chose to rebuild the city to its condition before the war. *(See Figure 61)* Architects turned to Russia as a base for experiments and discussion. Russian architects by then has congregated into several groups, namely, VhKTUMAS[42], OSA[43], ASNOVA[44], VOPRA[45]. Architects of Practical Industrialism, especially from Britain, Germany, France came to undergo one of the first worldwide research on architecture under one roof. The architects are, among them: Hannes Meyer, Charles-Edouard Jeanneret, Andre Lurcat, Ernst May, Colin Lucas. Among the Russian architects during this time are Moisei Ginzburg and Ivan Leonidov. The written acconunts on built environment focuses on the transition from the old practices to the new practice based on research of minimum standards of habitation and workmanship, e.g.: *L'Esprit Nouveau* by Charles-Edouard Jeanneret and Amédée Ozenfant (1920), *Wasmuth Portfolio* by Frank Lloyd

[42] Higher Art and Technical Studios, established by Vladmir Lenin. (Wikipedia, 2017)

[43] Organization of Contemporary Architects, the avant-garde wing of the VKhUTEMAS school in Moscow. (Wikipedia, 2017)

[44] Association of New Architects, started in 1923 by Nikolai Ladovsky, a teacher at VKhUTEMAS, and avant-garde architects such as Vladimir Krinsky. Ladovsky's teaching is more intuitive than scientific, and was partly based on gestalt psychology. (Wikipedia, 2017)

[45] All-Russian Society (All-Union Association) of Proletarian Architects. In 1929-1932, Mordvinov, Karo Alabyan and Alexander Vlasov were the founding members. They attacked proponents of the Constructivist movement, notably Ivan Leonidov, and all other "alien art" like eclectics, formalism and even baroque. (Wikipedia, 2017)

Wright (1911), and *Staying above style!* by Togo Murano (1919), Ornament and Crime by Adolf Loos (1913, in French, 1929 in German).

By the 1920s, Ernst May built 12,000 houses from 1925 to 1932 in New Frankfurt. *(See Figure 62)* and Frankfurt Kitchen with Margarete Schütte-Lihotzky. Hannes Meyer become the second director of Bauhaus. Bauhaus become profitable for the first time, and its workshops have linkages with industries of the time. Charles-Edouard Jeanneret published *Toward An Architecture* (1924), designed Quartiers Modernes Frugès, headquarters for the League of Nations in Geneva, and proposes *Radiant City* between 1926 to 1930. Andre Lurçat designed housing in Villeneuve-Saint-George in 1927 and designed a proposal for a vertical city in 1930. Moisei Ginzburg stayed in Moscow to conduct apartment studies and conduct disurbanism with Mikhail Okhitovich. Arkandy Mordvinov denounces Ivan Leonidov, Mikhail Okhitovich was executed by the Soviets, are part of the plan by the Stalin government to to combine all architect's movements into a single state-controlled architect's association, by force. Moisei Ginzburg and his team flee from Moscow, designed the sanotarium in Kislovodsk (1935 to 1937), with Ivan Illich Leonidov designed the staircase that connects the forest with the sanotarium (1937 to 1938) *(See Figure 63)* The literature at this time are: *Architecture and popular taste* by Douglas Haskell (1937), *Style and Epoch* by Moisei Ginzburg (1924),

Architecture by Andre Lurcat (1929), *Manners of Architecture* by Trystan Edwards (1924), *The Minimum Dwelling* by Karel Teige (1932).

In 1930 to 1950, there came World War II, when Germany becomes Nazi. Bauhaus shuts down in 1933, with Mies van der Rohe, then the third director of Bauhaus, shut down the school and flee to United States with Walter Gropius, and Ernst May and the 'New Frankfurt' team fleeing to Soviet Union. Fascists come into power, Adolf Hitler in Germany and Mussolini in Italy. During this time, there came about fascist practice. In Germany, spearheaded by Albert Speer, and in Italy by the 'Rationalists'. *(See Figure 64)* Theirs had a very stern appearance, very utilitarian, and shunned decoration, but also copied several principles of Ancient Rome practice, of which Industrialism had only used as a reference for its rigor. The nations at the forefront; Fascists, Allies, Communists, Japan bombed lots of structures. The culmination of bombing simultaneously destroyed entire cities and ended World War II: the bombing of Hiroshima and Nagasaki by the Allies against Japan. *(See Figure 65)*

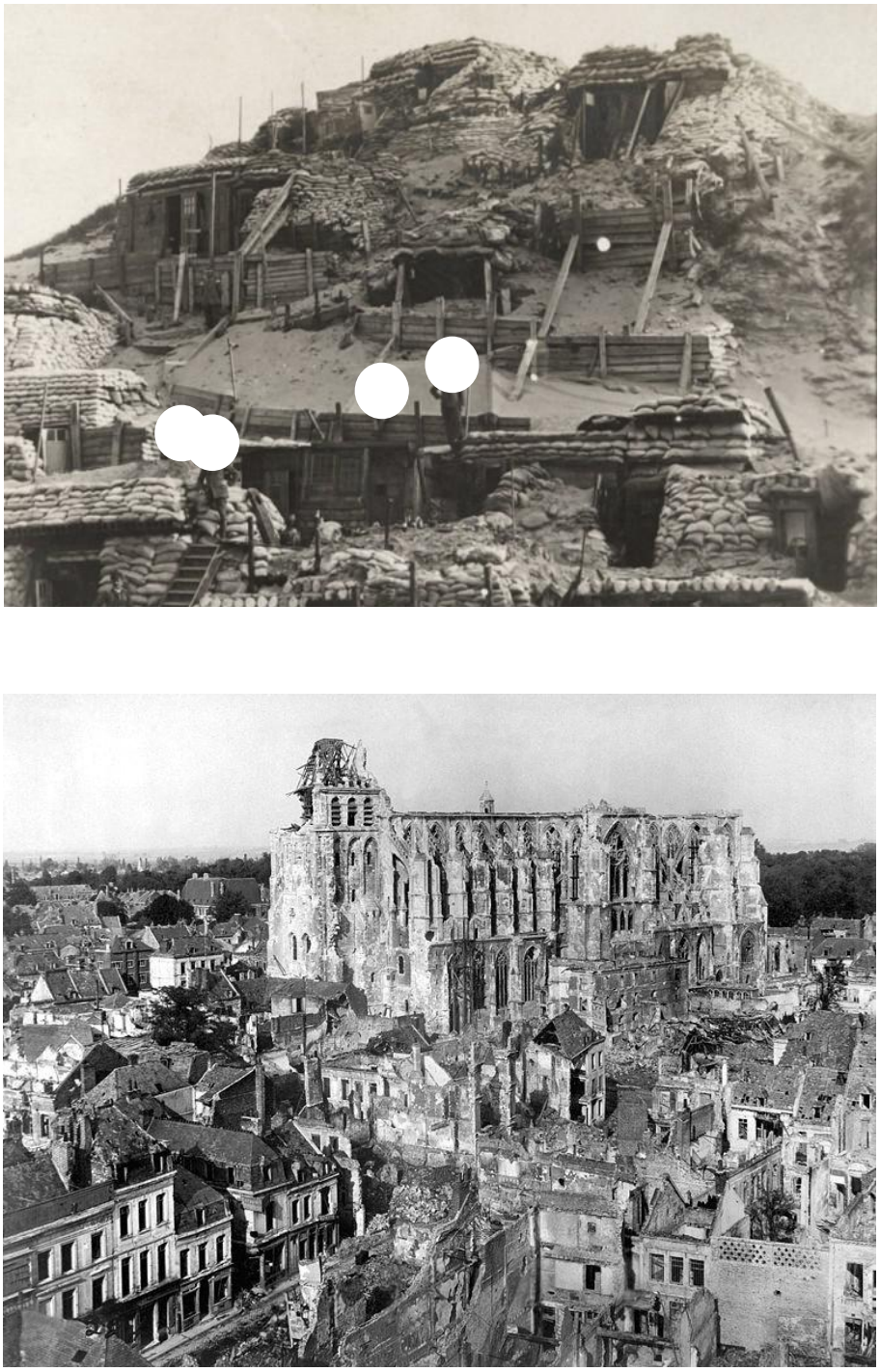


Figure 61: The effect of World War I on trenches and cities.

Source: Top: Unknown (1917), *A German observation post on the Yser Front in Belgium in 1917*, Reuters. Bottom: Unknown (1918), *Battle of Mont St Quentin - Ruins Cathedral of St Quentin*, Mat McLachlan Battlefield Tours (website).

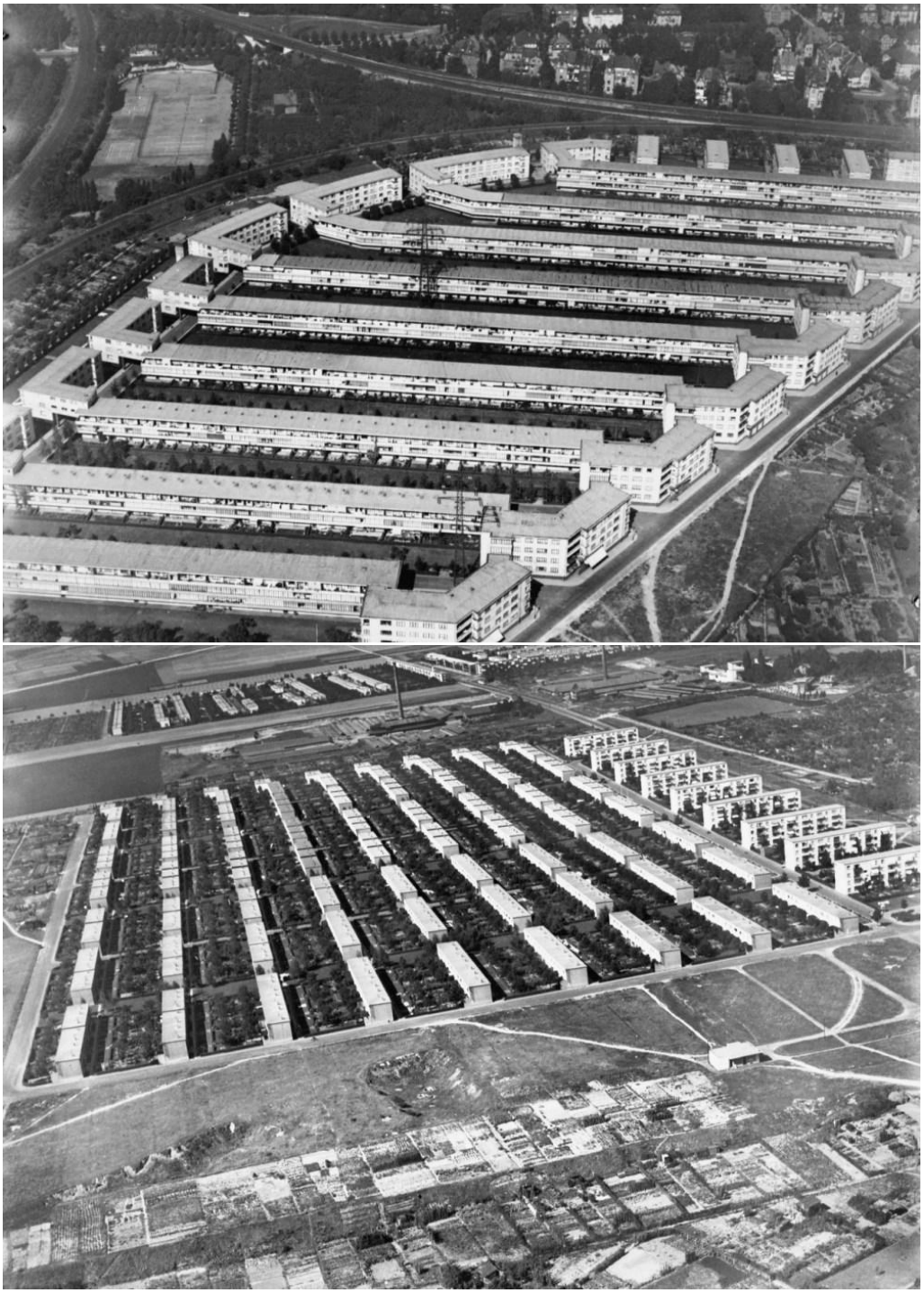


Figure 62: Estate Heimatsiedlung and Estate Westhausen, Frankfurt am Main, 1927–1934 by Ernst May.

Source: Above: Unknown (1930s), *Estate Heimatsiedlung, Frankfurt am Main, 1927–1934*, misfit's architecture (website). Below: Unknown (1930s), *Estate Westhausen, Frankfurt am Main, 1929–1931*, misfit's architecture (website).

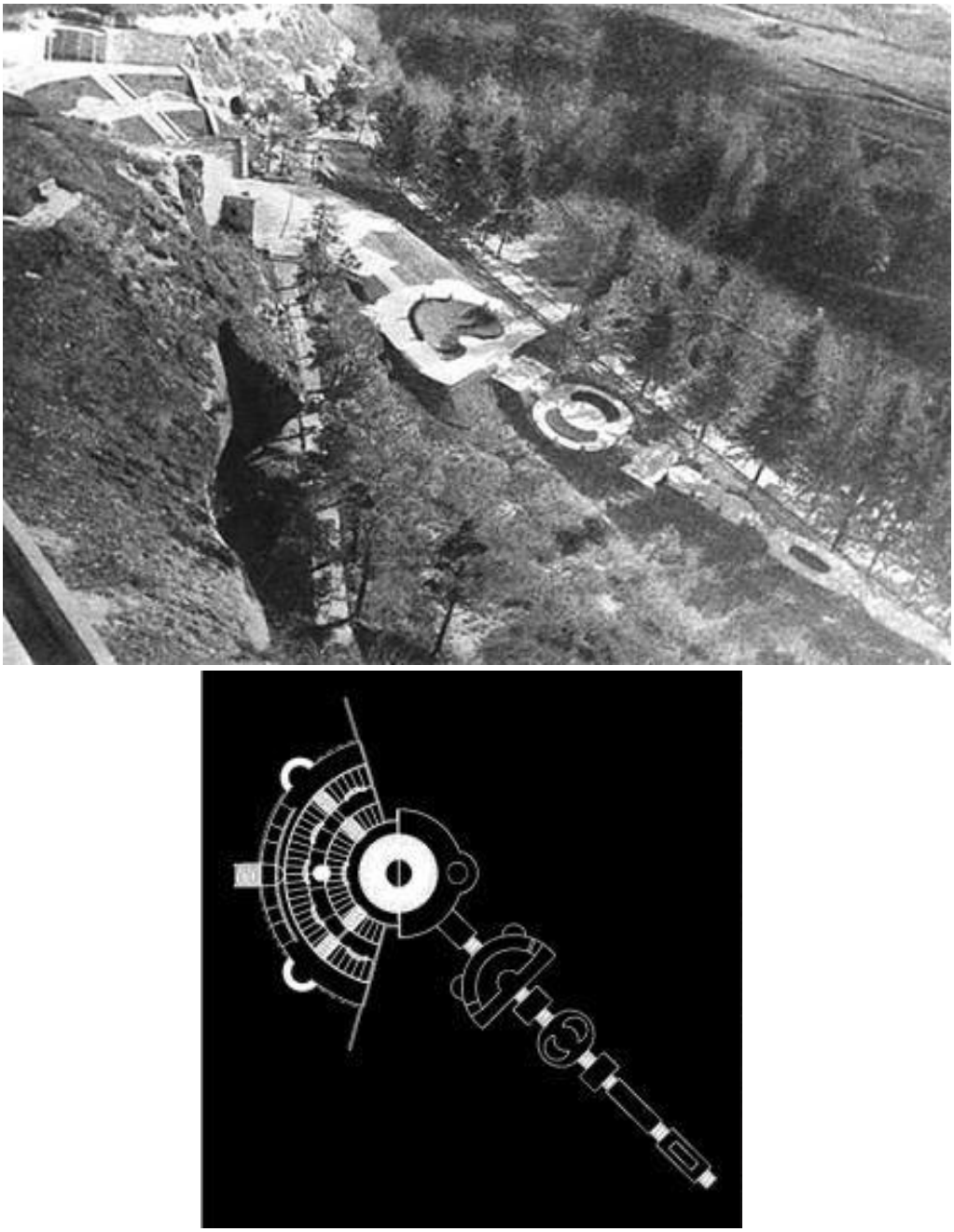


Figure 63: Graham Brenton McKay (2016): Leonidov's most celebrated projects all relied on elevators that, at the time, existed only in the United States. It is one of those sad jokes his only extant project is a staircase.

Source: Above and below: Unknown (1938), *(no title)*, misfit's architecture (website).

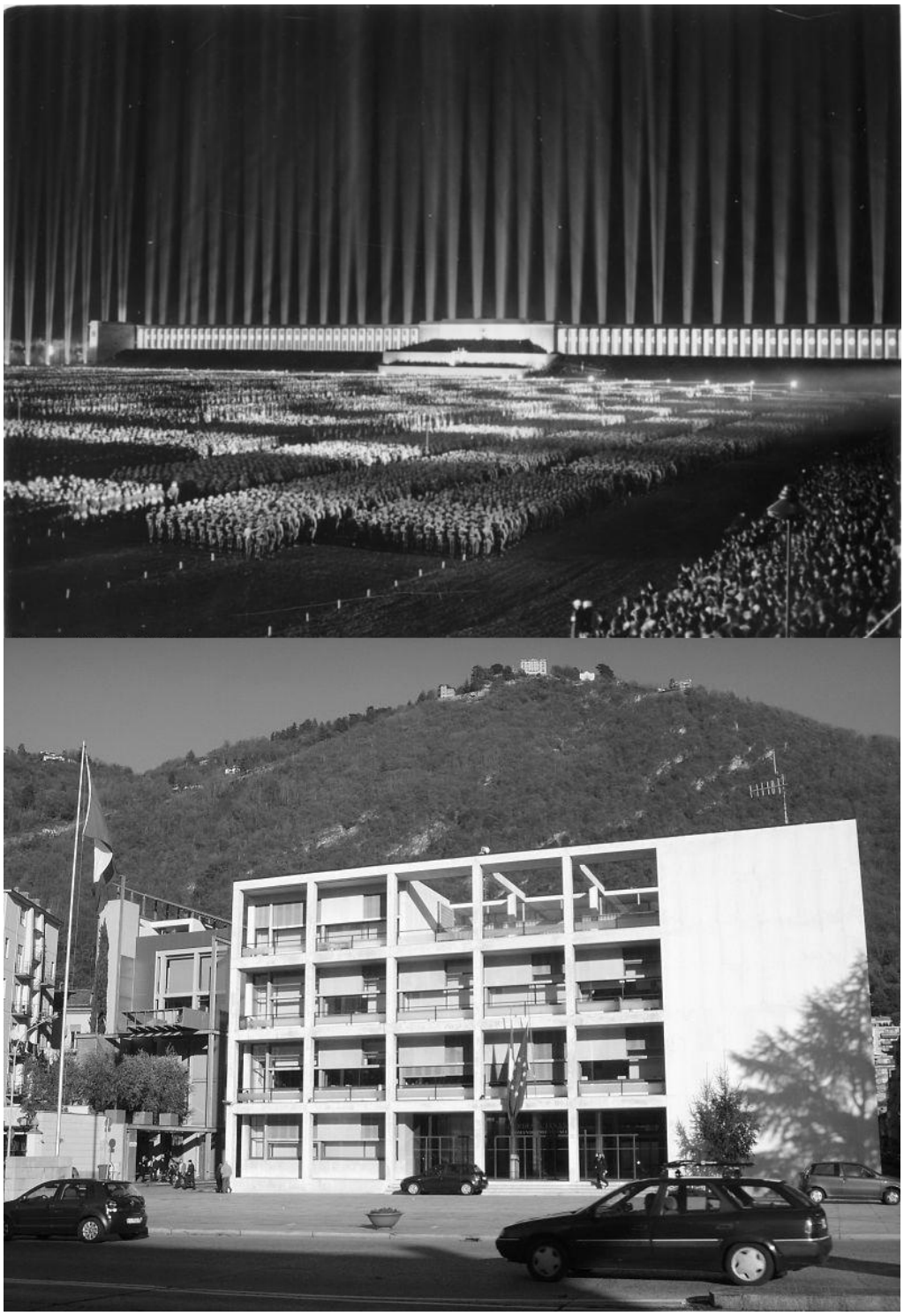


Figure 64: German and Italian approach to fascist (stripped-down ancient Roman attitude, looking inwards for resource, a scientific approach) practice.

Source: Above: Unknown (1936), *Nürnberg, Reichsparteitag, Lichtdom,* German Federal Archives. Below: Sailko (username) (2012), *La ex-Casa del Fascio di Como*, Wikimedia Commons (website).

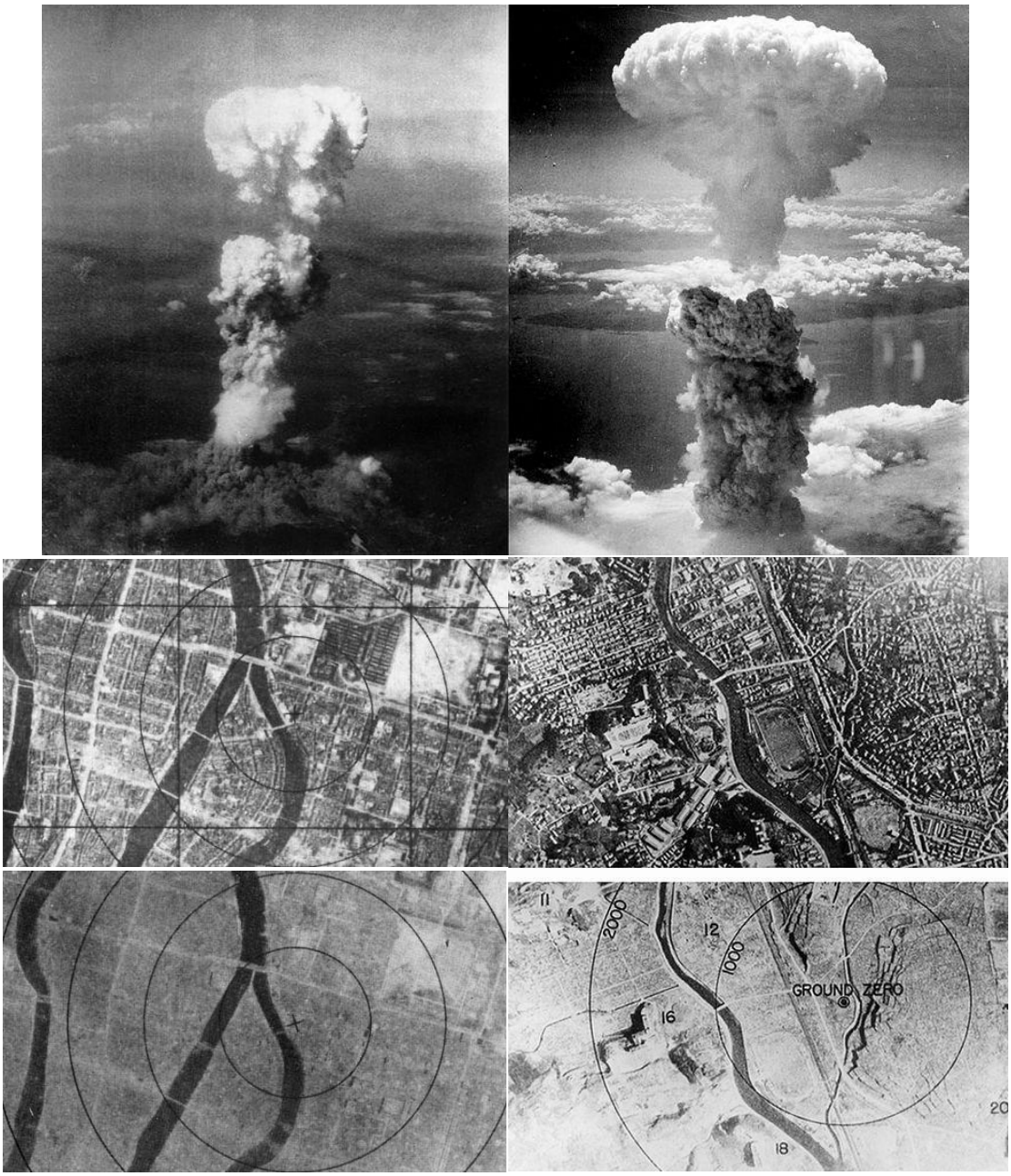


Figure 65: If given the right procedure and excellent discipline of its citizens, one could use this method to clear up poorly design and managed cities simply, but the method was rejected, on the grounds that one person may be lingering behind and the search team says that they found no one at the site anymore and that the method was not useful in controlling the spread of demolition as well as the risk of sudden noisiness.

Source: Above: Unknown (1945), *Atomic cloud over Hiroshima*, Wikimedia Commons (website). Charles Levy (1945), *Nagasaki bomb*, Wikimedia Commons (website).

2.4.6 From World War II until the 21st century.

After World War II ended, there came many housing shortages, for citizens who came back to their homes found no houses. In 1940s, what used to be just a bunch of proposals for ideal cities by architects who are more attuned to Philosophical Industrialism than the actual people who are living in the city they described as 'overcrowded, unhealthy and unsafe' came to capture the imagination of city officials. Their way of thinking was that by designing brand-new houses in a shorter time in original and new places, in contrast to World War I approach, which the buildings are rebuilt exactly as before the war, which will take longer (debatable, depends on authorities' resistance) and may not satisfy authorities' requirements (although the buildings incorporate the ethos of Practical Industrialism as stringently as possible?), will satisfy these citizens, who, they assumed, more concerned with time than quality, would just wanted a house to live. Thus, in Britain, 1946, the New Towns Act is enacted. 'New Towns' movement was formed in response, eager to design infrastructure and layout to accept authorities' standards and requirements from town's inauguration[46]. They give projects to architects who went to Soviet

[46] These towns have one fatal flaw: these towns lack factors which promotes cultural maturity among townspeople. The spread of knowledge which results in Scientific Revolution, Agricultural Revolution, and Industrial Revolution can only be promoted by fruitful exchange, play and dialogue between people of all backgrounds. In order to have all of those effects, the

Union to build back housing supply. E.g.: Somerset Estate in Battersea, Canada Estate in Rotherhithe, Aylesbury Estate in Wandsworth, and Wyndham Estate in Camberwell by Colin Lucas, Maubeuge masterplan by André Lurçat, Unites d' Habitation by Charles-Edouard Jeanneret, New-Altona in Hamburg and Neue-Vahr in Bremen by Ernst May. *(See Figure 66)* City officials also gave some housing developments to new architects who underwent education system of 1900s and subsequently practice and theorise. E.g.: Brasilia masterplan by Oscar Niemeyer, Robin Hood Gardens by Allison and Peter Smithson, Trellick Tower and Balfron Tower by Ernő Goldfinger, Pruitt-Igoe Housing by Minoru Yamasaki. *(See Figure 67)* It is also at this time Brutalism emerged from Britain, as a response to Charles-Edouard Jeanneret's preferred building material and by Swedish architect Hans Asplund to Villa Göth in Uppsala. *(See Figure 68)* By this time too there came new projects for public housing and university campuses, institutional buildings under more dosages of Philosophical Industrialism during 1960s to 1970s e.g.: Norfolk Terrace, University of

towns need to have configurations which foster the sense of trust, peace and tolerance among themselves. Although 'New Towns' managed to create specialised configurations for manufacturing industry to co-exist and at the same time allow for healthy physical living, the spatial configurations allow strangers to navigate and influence the town to their will with ease and allow no provision on the townspeople to defend themselves against strangers and manage secure close-knit bonds so as to be firm in their stance and not be blindly swayed by outside forces. This is the weak spot which causes the failure of Practical Industrialism practice and cause the rise of New Urbanism, a practice which seek to design urban plans which fosters a sense of community by studying the cause of such in configuration of medieval towns.

East Anglia by Denys Lasdun, Habitat 67 by Moshe Safdie, Walden 7 by Ricardo Bofill. *(See Figure 69)* However, the majority of the housing developments suffered from any of these problems: poor construction, poor management, poor administration, poor execution of welfare programmes, which lead to increasing social problems within those projects and contributed in part to the negative image of council housing in Britain and United States in 1960s.

Figure 66: Social housing by architects who are born in 1880s and had contacts with Soviets from top to bottom, left to right: Colin Lucas, André Lurçat, Charles-Edouard Jeanneret, Ernst May in 1940s to 1960s.

Source: Top left: Unknown (1965), *Wyndham Estate in Camberwell*, misfit's architecture (website). Top right: Unknown (2000s), *La ville moderne - l'architecture d'André Lurçat*, Ville de Maubeuge (website). Bottom left: Manfred Brückels (2010), *Le Corbusier's Berlin Unité*, Wikimedia Commons (website).

Figure 67: Social housing by architects who are born in 1900s and had no experience with the Soviets, top to bottom, left to right: Oscar Niemeyer, Allison and Peter Smithson, Ernő Goldfinger, Minoru Yamasaki in 1950s to 1960s.

Source: Top left: Eric Mohl (2017), *Eixo Monumental*, Trans-America Journey (website). Top right: Steve Cadman (2008), *RobinHoodgardens*, Wikimedia Commons (website). Bottom left: Fys (username) (2005), *Trellicktower*, Wkimedia Commons (website) Bottom right: United States Geological Survey (1970s), *Pruitt-igoeUSGS02*, United States Geological Survey.

Figure 68: Sketchy aesthetic of raw concrete + design emphasising cleverness, eschews appearance = Brutalism.

Source: Top: Man vyi (2008), *Royal National Theatre 10*, Wikimedia Commons (website). Bottom: Wikikire (2008), *Villa Göth. Byggnadsminne i Uppsala*, Wikimedia Commons (website).

Figure 69: Social housing by architects who one is born in 1910s and two in 1930s. Far from Soviet training, let alone experiencing the genesis of Philosophical Industrialism, they are in the practice from the start of their careers. From top to bottom, left to right: Denys Lasdun, Moshe Safdie, Ricardo Bofill. These are completed in 1960s.

Source: Top left: Nicola J. Patron (2013), *Norfolk Terrace and Attached Walkways, at the University of East Anglia*, Wikimedia Commons (website). Bottom left: Brian Pirie (2006), *Habitat 67 (Montreal)*, Wikimedia Commons (website). Right: Marc Beramendi (2010), *Walden 7 Building - Front View*, Wikimedia Commons (website).

In 1960s, following unpopularity with social housing, architects found no option but to 'loosen up'. There sprang forth counterculture, which was established to fill in the spiritual dimension missing during the early 20th century. From then on, Philosophical Industrialism reigns. The strands of Philosophical Industrialism occurs in this order *(See Tables 1 and 2)*

1. Theory construction awkwardness:

    a) Idiosyncratic (the configuration is informed by those not related at all to present context, in which in copying the design to any other site, the building can still be used satisfactorily even without contextual modifications)

    b) Relatable Referential (the configuration where present context acted only as in what a catalyst is to a chemical process)

    c) Integrative (the configuration is thoroughly informed by the present context that it functions as an answer or response, in which if the design is copied to any other site, costly and extensive works are needed just to get the basics of building configuration to work that it is cheaper (cost and time) and simpler procedure to reject the copied design and re-design from ground-up)

2. Sociability of theory:

a) Authoritarian (a theory that has a reliable internal logic but is developed using logic that may be outdated by today)

b) Populism (a theory whose internal logic is confused and unreliable but did keep track on what logic is in vogue)

3. Design panache:

a) Scientific (striving towards perfection independent of any preconceived notions)

b) Artistic (striving towards perfection in terms of preconceived notions)

Table 1: Philosophical Industrialism Strands, by Architect (not exhaustive).

Philosophical Industrialism

No. (earliest to latest)		Architect (person/firm)	Built environment criterion		
			Theory construction awkwardness	Sociability of theory	Design panache
0	1	Walter Gropius	Idiosyncratic	Authoritarian	Scientific
	2	Mies van Der Rohe			Artistic
	3	Oscar Niemeyer			
	4	Edward D. Stone			
	5	Allison and Peter Smithson		Populism	Scientific
	6	R. Venturi and D. Scott Brown			Artistic
	7	Anne Tyng		Authoritarian	Scientific
	8	Louis I. Khan			Artistic
	9	Aldo Rossi			
1	0	John Hejduk			
	1	Oswald Ungers			
	2	Peter Eisenman		Populism	
	3	Superstudio			
	4	ArchiZOOM			
	5	Peter Cook		Authoritarian	
	6	Thom Mayne			
	7	David Libeskind			
	8	Rem Koolhaas			Scientific
	9	Wolf D. Prix			Artistic
	0	Zaha Hadid			
	1	SANAA			
	2	John Pawson			
	3	Charles-Edouard Jeanneret	Relatable Referential	Authoritarian	Artistic
	4	Kenzo Tange		Populism	
	5	Eero Saarinen			
	6	Jorn Utzon			
	7	Hijjas Kasturi			
	8	Ricardo Bofill			
	9	Michael Graves			Scientific
3	0	SITE			

3	**1**	Bernard Tschumi	Relatable Referential	Authoritarian	Artistic
	2	Norman Foster			
	3	Tadao Ando			
	4	Kazuo Shinohara			
	5	Atelier Bow-Wow		Populism	Scientific
	6	Alejandro Aravena		Authoritarian	
	7	Otto Wagner	Integrative	Authoritarian	Artistic
	8	Adolf Loos			
	9	Frank Lloyd Wright			
4	**0**	Ivan Illich Leonidov		Populism	Scientific
	1	Knud Peter Harboe			
	2	Eladio Dieste			
	3	Christopher Alexander			
	4	Cedric Price			
	5	Glen Howard Small			
	6	Ieoh Ming Pei		Authoritarian	Artistic
	7	Richard Rogers		Populism	
	8	Kengo Kuma			
	9	Toyo Ito			
5	**0**	Nader Khalili			Scientific
	1	Peter Zumthor		Authoritarian	Artistic
	2	Bjarke Ingels			Scientific
	3	Qhawarizmi Norhisham			
	4	Lacation & Vassal		Populism	
	5	H Arquitectes			
	6	Non-architects			

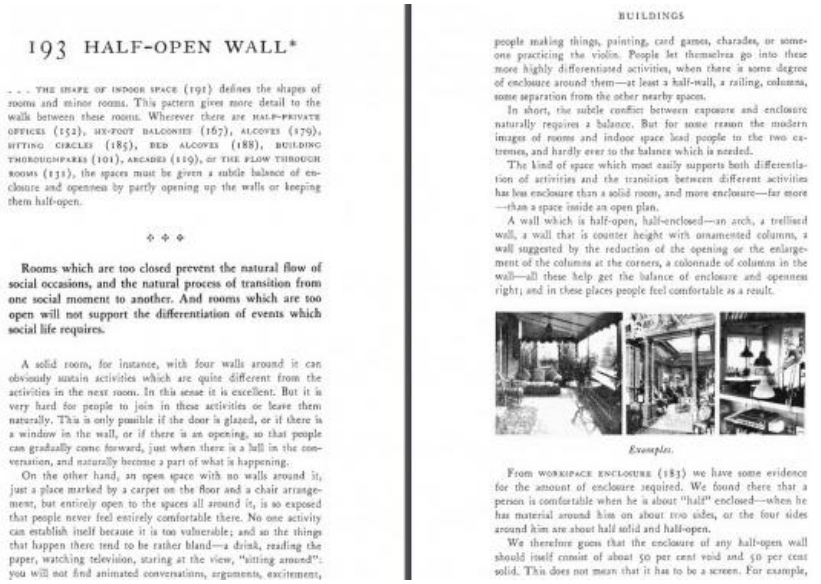
Table 2: Philosophical Revivalism Strands, by Architect (not exhaustive).

Philosophical Revivalism

No. (earliest to latest)		Architect (person/firm)	Built environment criterion		
			Theory construction awkwardness	Sociability of theory	Design panache
0	1	Albert Speer	Idiosyncratic	Authoritarian	Artistic
	2	Leon Krier			
	3	Pier Carlo Bontempi			
	4	Quinlan Terry			
	5	Rob Krier	Relatable Referential		
	6	A. M. Stern		Populism	
	7	Andres Duany	Integrative		Scientific
	8	Michael Mehaffy			
	9	Hassan Fathy			
1	0	Non-architects			Artistic

Note that remnants of Practical Industrialism are still there, just relegated to housing, of which architects undergoes a massive rethinking towards 'New Urbanism', that focuses on the original goal of *Garden Cities*, equipped with studies on the medieval towns. The literature at this time focuses on the considerations on communities as its central focus, continuing Camillo Sitte's original study, e.g.: *A Pattern Language* by Cristopher Alexander (1977), *Twelve Cautionary Tales for Christmas, (12 Ideal Cities)* by Superstudio (1971), *The Image of a City* by Kevin A. Lynch (1960), *The architecture of the city* by Aldo Rossi (1966), *Architecture for the Poor : An Experiment in Rural Egypt* by Hassan Fathy (1976). *(See Figure 70)*

In 1980s, the computer technology began entering architect's working space such as AutoCAD. *(See Figure 71)* Also, with increasing prosperity and new hunger for design thoughts with fashion mindset has lead to several examples of Baroque Dramatic strand of Philosophical Industrialism, e.g.: Zaha Hadid, Peter Eisenman, Nicholas Grimshaw, Norman Foster. Also, the genesis of Baroque Realistic strand is spearheaded by Rem Koolhaas, e.g.: *Delirious New York: A Retroactive Manifesto of Manhattan* (1978), also *Cedric Price: Works II* by Cedric Price (1984). *(See Figure 72)*



193 HALF-OPEN WALL*

. . . THE SHAPE OF INDOOR SPACE (191) defines the shapes of rooms and minor rooms. This pattern gives more detail to the walls between these rooms. Wherever there are HALF-PRIVATE OFFICES (152), SIX-FOOT BALCONIES (167), ALCOVES (179), SITTING CIRCLES (185), BED ALCOVES (188), BUILDING THOROUGHFARES (101), ARCADES (119), OR THE FLOW THROUGH ROOMS (131), the spaces must be given a subtle balance of enclosure and openness by partly opening up the walls or keeping them half-open.

Rooms which are too closed prevent the natural flow of social occasions, and the natural process of transition from one social moment to another. And rooms which are too open will not support the differentiation of events which social life requires.

A solid room, for instance, with four walls around it can obviously sustain activities which are quite different from the activities in the next room. In this sense it is excellent. But it is very hard for people to join in these activities or leave them naturally. This is only possible if the door is glazed, or if there is a window in the wall, or if there is an opening, so that people can gradually come forward, just when there is a lull in the conversation, and naturally become a part of what is happening.

On the other hand, an open space with no walls around it, just a place marked by a carpet on the floor and a chair arrangement, but entirely open to the spaces all around it, is so exposed that people never feel entirely comfortable there. No one activity can establish itself because it is too vulnerable; and so the things that happen there tend to be rather bland—a drink, reading the paper, watching television, staring at the view, "sitting around": you will not find animated conversations, arguments, excitement,

BUILDINGS

people making things, painting, card games, charades, or someone practicing the violin. People let themselves go into these more highly differentiated activities, when there is some degree of enclosure around them—at least a half-wall, a railing, columns, some separation from the other nearby spaces.

In short, the subtle conflict between exposure and enclosure naturally requires a balance. But for some reason the modern images of rooms and indoor space lead people to the two extremes, and hardly ever to the balance which is needed.

The kind of space which most easily supports both differentiation of activities and the transition between different activities has less enclosure than a solid room, and more enclosure—far more—than a space inside an open plan.

A wall which is half-open, half-enclosed—an arch, a trellised wall, a wall that is counter height with ornamented columns, a wall suggested by the reduction of the opening or the enlargement of the columns at the corners, a colonnade of columns in the wall—all these help get the balance of enclosure and openness right; and in these places people feel comfortable as a result.

Examples.

FROM WORKSPACE ENCLOSURE (183) we have some evidence for the amount of enclosure required. We found there that a person is comfortable when he is about "half" enclosed—when he has material around him on about two sides, or the four sides around him are about half solid and half-open.

We therefore guess that the enclosure of any half-open wall should itself consist of about 50 per cent void and 50 per cent solid. This does not mean that it has to be a screen. For example,

Twelve
Cautionary Tales
for Christmas

PREMONITIONS OF THE MYSTICAL REBIRTH OF URBANISM

SUPERSTUDIO evoke twelve visions of ideal cities, the supreme achievement of twenty thousand years of civilization, blood, sweat and tears the final haven of Man in possession of Truth, free from contradiction, equivocation and indecision; totally and for ever replete with his own PERFECTION.

First city
2,000-ton city

Second city
Temporal cochlea-city

Third city
New York of brains

Fourth city
Spaceship city

Fifth city
City of the hemispheres

Sixth city
Barnum Inc.'s Magnificent and Fabulous City

FIG. 35. *The Boston image as derived from verbal interviews*

FIG. 36. *The Boston image as derived from sketch maps*

FIG. 37. *The distinctive elements of Boston*

FIG. 38. *The visual form of Boston as seen in the field*

Figure 70: Literature on the subject of architecture in 1970s.

Source: Top: Gregory Taylor (2016), *an excerpt of Christopher Alexander's A Pattern Language*, Cycling '74 (website). Middle: Superstudio (1971), *Twelve Cautionary Tales for Christmas, (12 Ideal Cities)*, Architectural Design. Below: Kevin Lynch (1960), *The Image of the City*, MIT Press, Cambridge, MA.

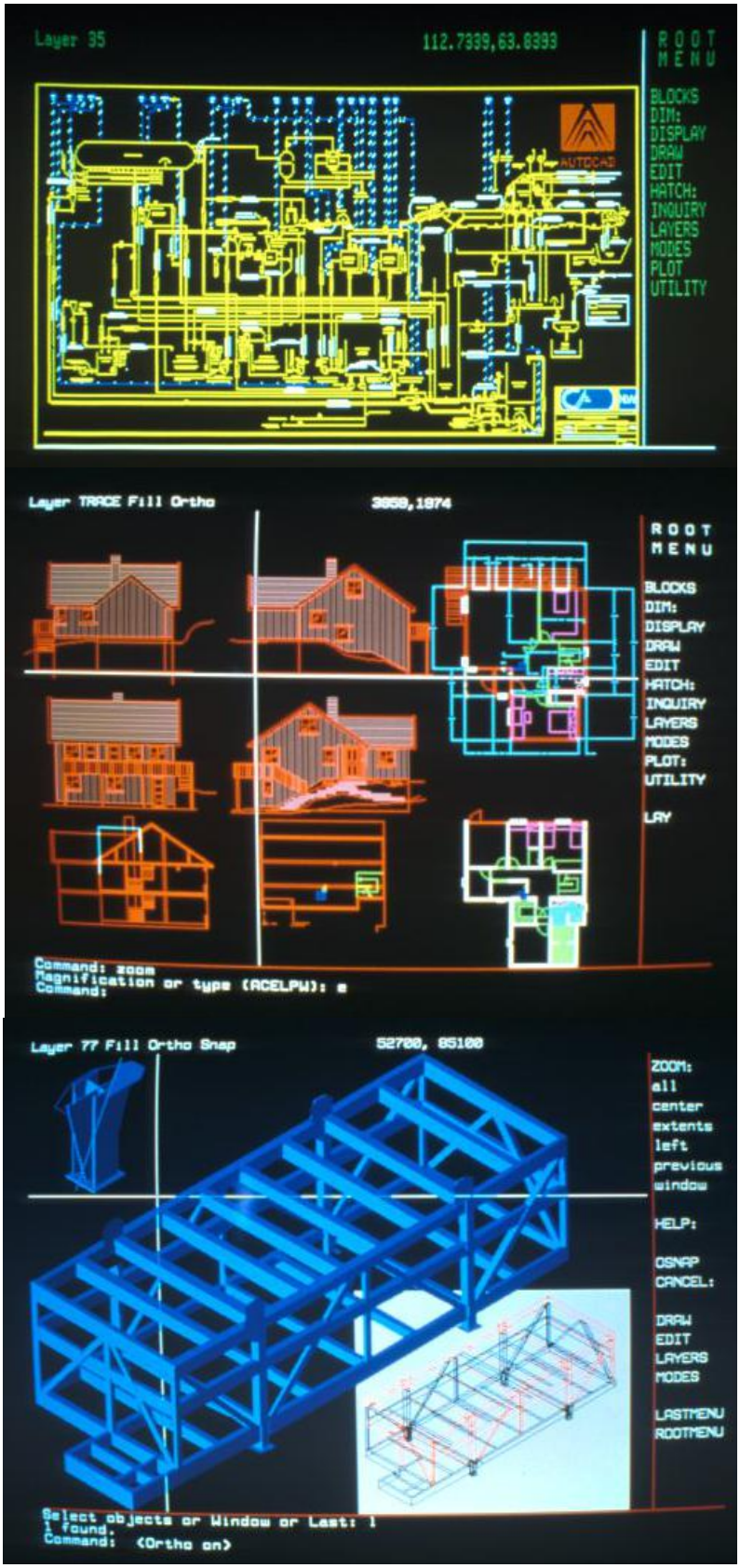


Figure 71: Initial Public Offering presentation of AutoCAD 2.1 in 1985.

Source: John Walker (1985), *IPO Road Show Slides: 1985*, Fourmilab Switzerland (website).

Figure 72: Baroque Dramatic strand of Philosophical Industrialism. From top to bottom, left to right: Zaha Hadid, Peter Eisenman, Nichloas Grimshaw, Norman Foster.

Source: Top left: Zaha Hadid (1983), *The World (89 Degrees)*, Arcspace (website). Top right: Unknown (1985), *Plan for IBA Social Housing, 1981-85, Berlin, West Germany*, BOMB Magazine (website). Bottom left: Bill Nicholls (2009), *Oxford Ice Rink, Oxford, England*, Geograph (website). Bottom right: Brian Robert Marshall (2006), *The Spectrum Building, West Swindon*, Geograph (website).

In 1990s, the success of Guggenheim Bilbao by Frank Gehry, and buildings by Zaha Hadid, Will Alsop, Rem Koolhaas, Peter Zumthor has caused reconsideration regarding the creation of public architecture. Often these projects are in the form of one, singular complex in one site. Subsequently, the number of architects who are willing to 'sell' their talent to the wealthy clients to obtain future projects has risen to levels unseen before, causing another term to rise; "starchitects". Along this time, most of the literature focuses on how architecture of built environment should deal with arts of a culture, for example: *S, M, L, XL* by Rem Koolhaas and Bruce Mau (1995), *Architecture: Choice or Fate* by Leon Krier (1998), and *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream* by Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck (2000). *(See Figure 73)*

In the 2000s, the alarming carbon dioxide output, resulting from car dependency, wasteful ideologies and practices, and intra-nation shipping has sparked widespread concerns about global warming, and sustainability become a popular subject for the first time. Projects such as Southeast False Creek Neighbourhood Development in Vancouver, Canada are created. *(See Figure 74)* Officials have set standards such as LEED[47] and BREEAM[48] and Passivhaus Standard. *(See Figure 74)*

[47] Leadership in Energy and Environmental Design, a United States Green Building Council (USGBC) rating system. (Portland Cement Association, 2017)

Active systems of sustainability such as green roof and rainwater harvesting has been employed. *(See Figure 75)* Reconsideration of the food supply source has caused the formation of off-grid communities, vertical farms, do-it-yourself farms. *(See Figure 76)* The increasing proliferation of Internet, officialised by Tim-Berners Lee meant that knowledge now can be inputted and accessed in a manner that can be publicly accessed worldwide. *(See Figure 77)* Reconsideration of treatment to the homeless has caused innovative initiatives. *(See Figure 78)* Written accounts on built environment continues on more built projects, with increasing importance on process and consideration of context, namely: *Yes is More* by Bjarke Ingels (2009), *Agricultural Urbanism: Handbook for Building Sustainable Food Systems in 21st Century Cities* by Janine de la Salle and Mark Holland (2010), *The Not So Big House: A Blueprint for the Way We Really Live* by Sarah Susanka and Kira Obolensky (2009). *(See Figure 79)*

[48] Building Research Establishment Environmental Assessment Method, first published by the Building Research Establishment (BRE) in 1990, is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. (Wikipedia, 2017)

Figure 73: 1990s Baroque Dramatic strand of Philosophical Industrialism. From top to bottom, left to right: Frank Gehry, Will Alsop, Zaha Hadid, Rem Koolhaas.

Source: Top left: PA (username) (2015), *Musée Guggenheim au petit matin*, Wikimedia Commons (website). Top right: Wolfgang Meinhart (2010), *Hamburg.Altona.Fährterminal.wm*t, Wikimedia Commons (website). Bottom left: Sandstein (2006), *Vitra fire station, full view, Zaha Hadid*, Wikimedia Commons (website). Bottom right: Jeffrey Beall (2012), *Kunsthal Rotterdam*, Wikimedia Commons (website).

Figure 74: Linda Velasquez (2010): 2010 Olympic and Paralympic Village at Southeast False Creek (SEFC) will eventually become home to 16,000 residents and commercial users after the Winter Games, with 250 affordable housing units in its first phase, a 45,000 square foot community center, three child care centers, an elementary school, community garden, public plaza (…) The 32 hectare (80 acres) SEFC community is a former industrial site. More than half of the land is owned by the City and the rest, otherwise. (The project costs Millennium Development Corporation $1-billion-plus. The project's specialty is the 50% allocation of green roof area, mandated by the City of Vancouver!)

Source: Above: Unknown (2009), *Olympic and Paralympic village aerial view 12.17.09*, Sky Gardens (website). Middle: Danny Singer (2009), *(no title)*, The Challenge Series (website). Below: City of Vancouver (2009), *Olympic and Paralympic Village*, City of Vancouver.

Energy performance targets and air changes per hour	
Specific Heating Demand	≤ 15 kWh/m^2. yr
Specific Cooling Demand	≤ 15 kWh/m^2. yr
Specific Heating Load	≤ 10 W/m^2
Specific Primary Energy Demand	≤ 120 kWh/m^2. Yr
Air Changes Per Hour	≤ 0.6 @ n50

Reverse contribution to climate change
Enhance Community, Social Equity, Env. Justice & Quality of Life
Enhance human health and wellbeing
What Should a LEED Project Accomplish?
Build a greener economy
Protect and restore water resources
Promote sustainable and regenerative resource cycles
Protect biodiversity and ecosystem services

The Code provides a balanced approach minimising impacts on the global and local environment; and maximising the following:

- resource efficiency
- health, wellbeing, comfort, safety and security of users and others
- social and cultural value
- opportunities for effective and efficient use of facilities
- direct and indirect economic benefits

Compliance with The Code, requires all schemes, methodologies and guidance to be:

- Based on robust, peer reviewed science
- Based on a holistic and balanced consideration of benefits and burdens to stakeholders
- Independently audited where leading to formal certification or external claims of performance
- Fully and openly documented in terms of their scientific basis, inclusivity, technical requirements and operational principles
- Based on established regulatory, construction and management practices and protocols to maximise relevance and acceptability

Figure 75: Requirements of Passivhaus (top), LEED (middle), BREEAM (bottom).

Source: Above: Unknown (2011), Passivhaus (website). Middle: Brendan Owens, et. Al. (n.d.), *LEED v4 Impact Categories*, LEED (website). Below: Building Research Establishment Ltd. (2017), *Why BREEAM?*, BREEAM (website).

Figure 76: Growing food near cities has been easier in 2000s. The one in the middle picture has been doing it from 1960s.

Source: Top: Unknown (2000s), *(no title)*, Agriculture 2.0 (website). Middle: Steve Bouey (2013), *(no title)*, The World by Road Collective (website). Bottom: Alberto Chang (2010), *Sky Greens*, Google (website).

File Edit View Go Bookmarks Options Directory Help
Back Forward Home Reload Images Open Print Find Stop
Location: http://www.wikipedia.org/
What's New! What's Cool! Upgrades Net Search Net Directory Newsgroups Handbook
Log in | Help
Special pages
Go
Search
Printable version
Other languages: German | Esperanto | Spanish | French | Dutch | Polish | Portuguese
Main Page
From Wikipedia, the free encyclopedia
Welcome to Wikipedia, a collaborative project to produce a complete encyclopedia from scratch. We started in January 2001 and already have 44027 articles. We want to make over 100,000 complete articles, so let's get to work! Anyone, including you, can edit any article right now, without even having to log in. You can copyedit, expand an article, write a little or write a lot. See the Wikipedia FAQ for more background information about the project, and the help page for information on how to use and contribute to Wikipedia.

Figure 77: Netscape Navigator 1.22 for Microsoft Windows.

Source: Ericd (username) (2010), *Navigator 1-22*, Wikipedia (website).

Figure 78: The creation of Dignity Village.

Dignity Village (2000s): Moving to the Sunderland Yard site was indeed controversial. Some early members of Dignity Village felt it was too far outside the city, doomed to failure because residents wouldn't be able to access necessary services.

This move was meant to be temporary until a permanent site could be identified. Instead, it has been the home of Dignity Village since its controversial beginnings. After three years surviving in its temporary status, it was sanctioned as an official tiny house Village in 2004 by the Portland City Council. To do this, the City Council designated a portion of Sunderland Yard as a Designated Campground under the terms of ORS 446.265. This State statute allows 6 municipalities to designate up to two sites as campgrounds to be used for "transitional housing accommodations" for "persons who lack permanent shelter and cannot be placed in other low income housing." The statute notes that these transitional campgrounds may be operated by private persons or nonprofit organizations.

Source: Kwamba Productions (2001 - 2004), *(no titles)*, Dignity Village (website).

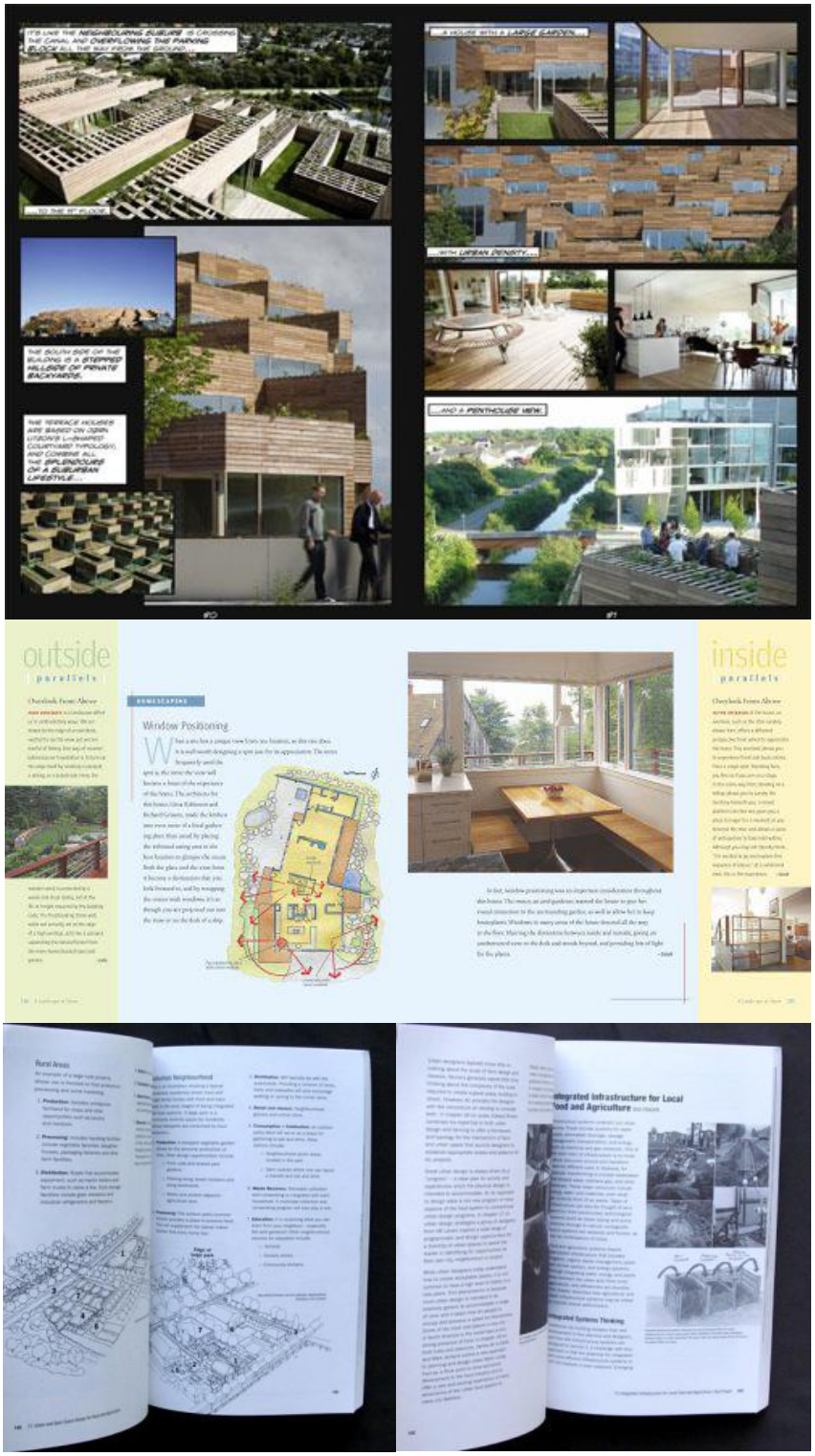


Figure 79: 2000s Philosophical Industrialism, reappraisal and at the same time a revival.

Source: Above: Bjarke Ingels (2009), *Yes Is More*, Taschen. Middle: Julie Moir Messervy, et al. (2006), *Outside the Not So Big House*, The Taunton Press. Bottom: Janine de la Salle, et. al. (2010), *Agricultural Urbanism: Handbook for Building Sustainable Food Systems in 21st Century Cities*, Libri Publishing.

CHAPTER 3: RESEARCH METHOD

My method of research is by reviewing written material, often in the books and the web, and personal observation in 5 years to come up with the concept of this research.

For written material, to procure is the easiest part (for internet, it is hard for books, except if one encounters library). What is hardest is coming up with a subject. Most of the subjects can only be obtained by sudden occurrence, prolonged search, and structural changes (e.g.: finalising the text).

For personal observation, I take mine from 'automatic research'[49], constantly theorising and practicing by doing academic work (especially design work and some subjects related to built environment), and constantly looking at today's state of design. I also sometimes take time off, doing humanitarian and spiritual acts so as to be able to focus on what really mattered as for why I am and why I am here.

[49] E.g.: surfing the internet, read what interests me, practice other disciplines, such as philosophy, writing, art.

CHAPTER 4: DATA ANALYSIS AND FINDINGS

Table 3: Details of Concerns, Theories and Practices of Each Era.

Potential misfires are highlighted in yellow. Obvious misfires are highlighted in red.

Stages	Civilisation	Concerns	Theories	Practice
Pre-history	All	Need place to stay instantly.	Stay in naturally sheltered places e.g.: caves.	Caves sheltered from rain, but may contain unexpected surprises (either desirable or undesirable).
		Need a place to stay that can be erected within a short time.	Build shelters using materials around site.	Shelter uses easy to procure, impermanent materials, sustainable since they are from plant matter.
		Need to migrate often.	Shelters will be easily crushed, lightweight but sturdy enough for a while.	Shelters are sustainable, low in construction processes but had to be repaired often, and only be able to contain a few people with little to no privacy.
Early civili-sation	Huang He (Chinese) Indus (Indian) Champa, Angkor (South East Asia) Mesopotamia, Egypt, Persian (Middle East) Greek, Roman (Western) Incan (South America)	Establishing order (physical and spiritual) in settlements.	The layout of roads are planned first, then the houses. Either way, the planning is done first before construction.	Settlements rebuilt or newly constructed according to masterplan (urban planning) including provisions for public facilities (doctor's house, roads)
		Bringing knowledge to public.	Make a shelter to keep written accounts.	First appearance of a library.

			Surround the shelter with literature.	The building are inscribed upon them literature. The literature is aimed at strengthening the impression of kingdom's power.
			Make literature about built environment as a guide for people how to design.	Literature focuses on the relationship between proposal, site context and belief.
		Keeping people's loyalty to the kingdom.	Establishing the kingdom as ruling the order of universe (mind control).	The massing of the built environment are arranged so as to make buildings easy to navigate and gives the impression of order and power.
Ancient Rome is no more until Renai-ssance	Middle East Muslims Roman Byzantine Medieval countries	Refining the execution of built environment works.	The planning and works to be made by skilled craftsmen.	Built environment has first-rate design and execution and first-rate costs.
		Aiming to execute masterpieces.	The design to be filled in as much as possible of cultural symbolism.	Built environment surrounded with motifs, concepts and methods, that a few years are needed to understand all the details.
Renai-ssance	Italy (Western)	Re-evaluate built environment 's position - built environment got too sidetracked with details.	Study built environment as practiced in antiquity.	First studies of ancients - built environments produced follow the same principles identified by the ancient ones.

		Emulate the attitude and approach to the world the way the ancients used to.	Attitude and approach to art to be reviewed - to be practiced as antiquity.	Attitude to art the same as in antiquity - no new ideologies, no challenges.
Post Renai-ssance to Indus-trial Revo-lution	Western	Gospel, gold, glory.	Divide and conquer.	Imperialism - imposition of Western practice onto colonies.
		Exploring 'inner reality'.	Increase efforts in interior and decorative design to exceptional levels.	Cultural symbolism as a side issue, no need for coherent stories but somehow required as a requisite to claim 'authenticity' - much attention given to apparent cohesiveness from massing to details.
Indus-trial Revo-lution until WWII	All, spearheaded by Western	Re-evaluation of built environ-ment's position to focus on today's pressing issues.	Built environment to be subjected to the rigor ranging between art statement and scientific research. Imposition of laws to ensure fair access to light, habitable rooms and clean air.	Studies of vertical built environment design, room configuration, volume efficiency, network efficiency. Studies on relationship of present built environment with human condition.

		Taking advantage of technology to make build environment cheaper to build and more free for expression.	Build theory, test, and do post-mortem, except they do it the expensive way - build the real thing.	Several proofs have been built, but did not respond back - changes in events is too violent to complete studies at that time.
		Consolidation of studies to produce a universal language of physical structures based directly on truth of structure mechanics and contemporary poetry.	The emergence of Practical Industrialism, based on factories and industrial structures, and Philosophical Industrialism, based on *Ornament and Crime* by Adolf Loos.	The practice of Practical Industrialism on social housing and Philosophical Industrialism on private houses and public structures.
WWII until 21st century	Worldwide	Continuing focusing on pressing issues of the day.	Built environment as a subject of research.	Books on built environment increase in investigative and conceptual quality.
		Re-evaluation of the conception of built environment.	Implementing experimental attitude to built environment research.	Several academic institution on built environment become research-driven, produce speculative theories and designs.

		Readdress the relationship of built environment towards context.	Increase efforts towards context research, passive and active sustainability systems, design thoughts.	Books, projects by students, firms become more descriptive, investigative, critical, innovative, introspective, and demonstrative.
		Earn to eat by offering expertise.	Make built environment as a commodity product.	Architect firms become industrialists, produces mass-produced designs, all with the same attitude and methodology.

From there, the potential misfires and obvious misfires have been extracted, regardless of era. From this much misfires by humans, why did it misfired? This question is asked so that from there, the harmful characters can be identified by skimming through for common relationships.

Table 4: Compilation of Potential Misfires and Obvious Misfires.

Concerns	Theories	Practice	Why it misfired?
Need place to stay instantly.	Stay in naturally sheltered places e.g.: caves.	Caves sheltered from rain, but may contain unexpected surprises (either desirable or undesirable).	Distractions will divert one's mind from the main focus, that is survival.
Need to migrate often.	Shelters will be easily crushed, lightweight but sturdy	Shelters are sustainable, low in construction processes but had to be repaired	There is a risk that one will migrate to where the materials needed are not available. Privacy affects emotional health, the lack

	enough for a while.	often, and only be able to contain a few people with little to no privacy.	of them may lead to depression.
Bringing knowledge to public.	Make literature about built environment as a guide for people how to design.	Literature focuses on the relationship between proposal, site context and belief.	They somehow managed to obfuscate themselves by providing accurate observations and then making up reasons why it happened like it did. If we wanted our literature to be useful to everyone, firstly we should be useful to ourselves by shutting up our mouth and focus on what we actually need. Then, we have to do a prolonged journey (do not set up a time limit for this because it is done when we have enough) and produce a lot of notes and theories to cover the universe of said observation to know what is it that did happened, while being mindful of the main objective. Then, put the resolution of it on paper, and publish it in wide circulation with wide publicity. There is no way round that if we want our literature to be useful to everyone.
Bringing knowledge to public.	Surround the shelter with literature.	The building are inscribed upon them literature. The literature is aimed at strengthening the impression of kingdom's power.	The mind cannot be critical, and thus cannot improve in an out-of-the-box manner if the mind is fed with blind affirmation and blind orthodoxy.
Keeping people's loyalty to the	Establishing the kingdom as ruling the order of	The massing of the built environment are arranged so as to make buildings	The conception and design of the built environment will cause great distress to the users (alienation) and

kingdom.	universe (mind control).	easy to navigate and gives the impression of order and power.	extravagantly expensive to maintain.
Refining the execution of built environment works.	The planning and works to be made by skilled craftsmen.	Built environment has first-rate design and execution and first-rate costs.	To carry on projects like this will cause economic inefficiency - money for that extra polish will be better spent on improvements to the infrastructure and populace.
Aiming to execute masterpieces.	The design to be filled in as much as possible of cultural symbolism.	Built environment surrounded with motifs, concepts and methods, that a few years are needed to understand all the details.	Putting too much effort in a futile thing is a waste of time, effort, money, and self - however, if it is done to learn, make sure that you yourself bear the burden of your own effort.
Emulate the attitude and approach to the world the way the ancients used to.	Attitude and approach to art to be reviewed - to be practiced as antiquity.	Attitude to art the same as in antiquity - no new ideologies, no challenges.	Can you learn anything by uncritically copying? You will only learn how to copy more faithfully.
Gospel, gold, glory.	Divide and conquer.	Imperialism - imposition of Western practice onto colonies.	The fault is on us for failing to visit them to tell why we are always content and always peaceful!
Exploring 'inner reality'.	Increase efforts in interior and decorative design to exceptional levels.	Cultural symbolism as a side issue, no need for coherent stories but somehow required as a requisite to claim 'authenticity' - much attention given to apparent cohesiveness from massing to details.	It seems what they require of us is their hearts to be filled with enlightenment. These actions tells us that they do not know the purpose of life, and their hearts die slowly. We are to blame for not visiting them and give them our share of peace to them.
Re-evaluation of built environment's	Built environment to be subjected to the rigor	Studies of vertical built environment design, room configuration, volume efficiency,	Art statements are dangerous, for when one just walk anywhere blindfolded, and being told nothing of it, one is

position to focus on today's pressing issues.	ranging between art statement and scientific research. Imposition of laws to ensure fair access to light, habitable rooms and clean air.	network efficiency. Studies on relationship of present built environment with human condition.	definitely not going anywhere even though their feet walk.
Taking advantage of technology to make build environment cheaper to build and more free for expression.	Build theory, test, and do post-mortem, except they do it the expensive way - build the real thing.	Several proofs have been built, but did not respond back - changes in events is too violent to complete studies at that time.	Still wasting money, even though your have an opportunity to be really tight with costs? Executing a design as if it is final when in fact, the planning is still horrible will only result in wastage of real estate and cause great distress due to extravagant maintenance due to overlooked fine points.
Consolidation of studies to produce a universal language of physical structures based directly on truth of structure mechanics and contemporary poetry.	The emergence of Practical Industrialism, based on factories and industrial structures, and Philosophical Industrialism, based on *Ornament and Crime* by Adolf Loos.	The practice of Practical Industrialism on social housing and Philosophical Industrialism on private houses and public structures.	Art: much ado about nothing. This starting point risks poor critical thinking (due to not having much restrictions, thus leads to poorly optimised designs) and thus make up for it by being subservient, deferential and uncritical to people with money in order to interest them in building his 'experiments'. This will cause great misery on people who will use his designs! Someone should tell him to not rush things through in building something!
Re-evaluation	Implementing	Several academic institution on built	Speculation at the most critical degree will cause

of the conception of built environment.	experimental attitude to built environment research.	environment become research-driven, produce speculative theories and designs.	water to become vapour: you fire so much effort that in the end, it does not matter anymore.
Readdress the relationship of built environment towards context.	Increase efforts towards context research, passive and active sustainability systems, design thoughts.	Books, projects by students, firms become more descriptive, investigative, critical, innovative, introspective, and demonstrative.	The craving to impress people by appearing intelligent and authentic equals to great wastage of time, effort, money, and self.
Earn to eat by offering expertise.	Make built environment as a commodity product.	Architect firms become industrialists, produces mass-produced designs, all with the same attitude and methodology.	They did not clear up their intentions regularly. It seems that they mixed up the desire to be advanced in thinking, be happy by getting rich, and fearing unhappiness by fearing poverty. We should tell him that death always accompanies the living, and you can only bring two things in death: belief and deeds!

CHAPTER 5: CONCLUSION AND RECOMMENDATION

One question must be asked in order to deliver the promise of the title: Why we can churn out design thoughts that lead to design malpractices?

I have identified several characteristics:

1. Inconsiderate, reckless, arrogance: not giving proper due to everything affected by your actions.
2. Impatience, cutting corners: not taking time to avoid disasters by giving proper due.
3. Paranoia: constantly assuming wrong things about things.
4. Irresponsibility: taking the easy way out; e.g.: will rather stay waiting for the money than to rush to the toilet to ‘let it go’.
5. Wasteful, dishonest: Taking more than what one really need, an unhealthy obsession toward impermanent things, prioritising oneself over truth.

I recommend every architecture students and professionals, if they wanted to provide a service for oneself towards humanity, that they must destroy every characteristics above in their practice, not just in

professional practice, but in day-to-day lives, down to details considered unimportant such as washing after excretion, eating food and sleeping, when you have just identified such in your practice, at instant, destroy it like you destroy pests.

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